the OIL AND GAS JOURNAL

TEXAS TECHNOLOGICAL

NOV 8 1948

COLLEGE LIBRARY

Members of the API

Your constructive thinking and standardization programs contribute immeasurably to the economical and efficient production of oil, the life blood of America's mechanized economy. Under the stimulus of free competitive enterprise, this mechanized economy has produced in our nation the highest standard of living ever known to man. Let us work diligently to preserve this way of life that has made possible this unparalleled progress.

MISSION MANUFACTURING CO.

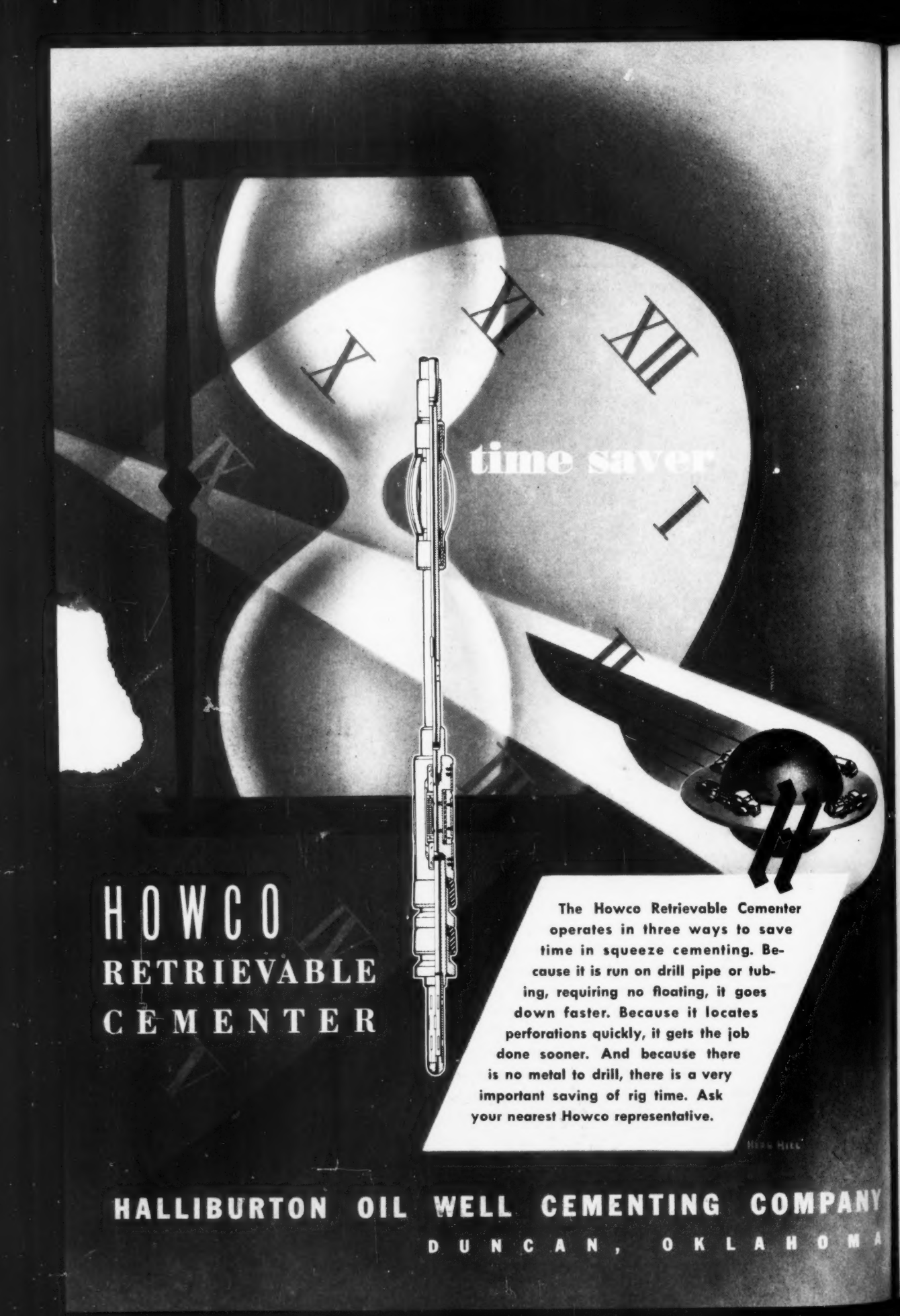
P. O. BOX 4209 HOUSTON 14, TEXAS

Export Office: 30 Rockefeller Plaza, New York 20, N. Y.
European Address: London, England

You see the results of
FREE COMPETITIVE ENTERPRI
in MISSION PRODUCTS

Mission's offer, through the years, to submit its pr
to competitive tests, and Mission's exceptional gu
tees, are proof of Mission's belief in the efficacy of
competitive enterprise as a means of stimulating the
continuous development of better products.

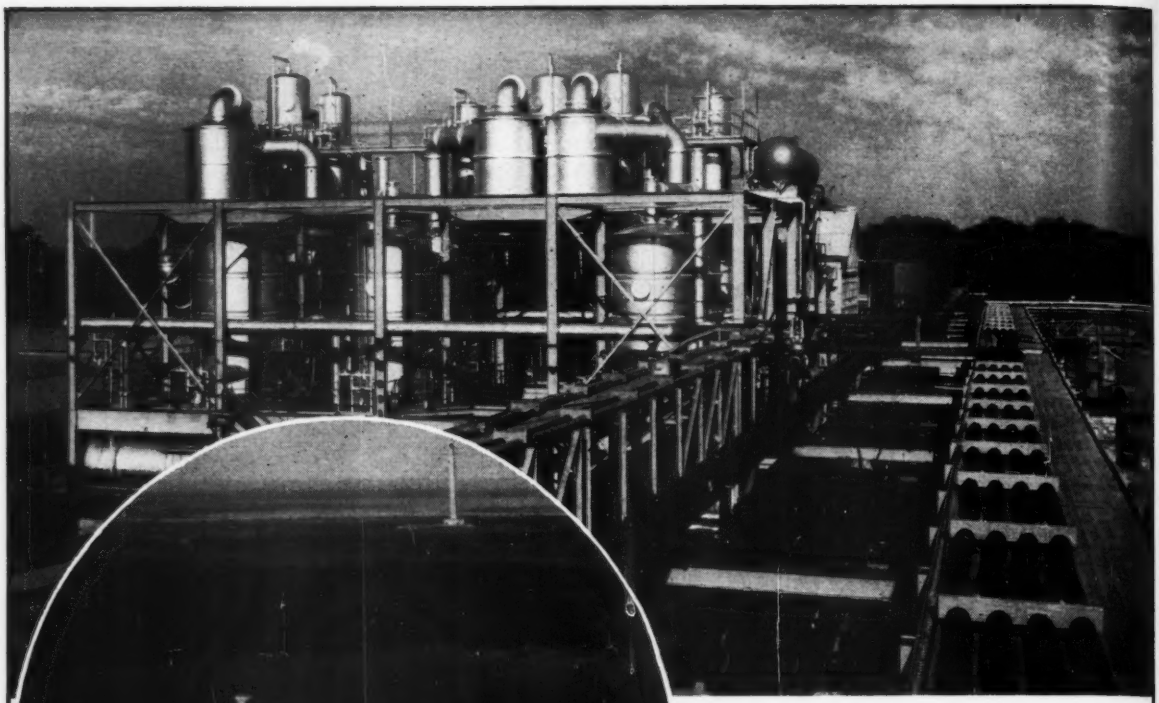
MISSION PISTONS with replaceable rubbers
MISSION Super-Surfaced* PISTON RODS
*Trade Mark Reg. U. S. Pat. Off.
MISSION CENTRIFUGAL PUMPS
MISSION Automatic Lubricated PLUG VALVES
MISSION Silver Top VALVES with replaceable wear-taking bushings
MISSION Self Sealing GLAND PACKING
MISSION Super-Service VALVES for extremely high pump pressures
MISSION Rolling Dog SLIPS
MISSION Super-Speed Rolling Dog POWER SLIPS
MISSION VALVELESS SWABS

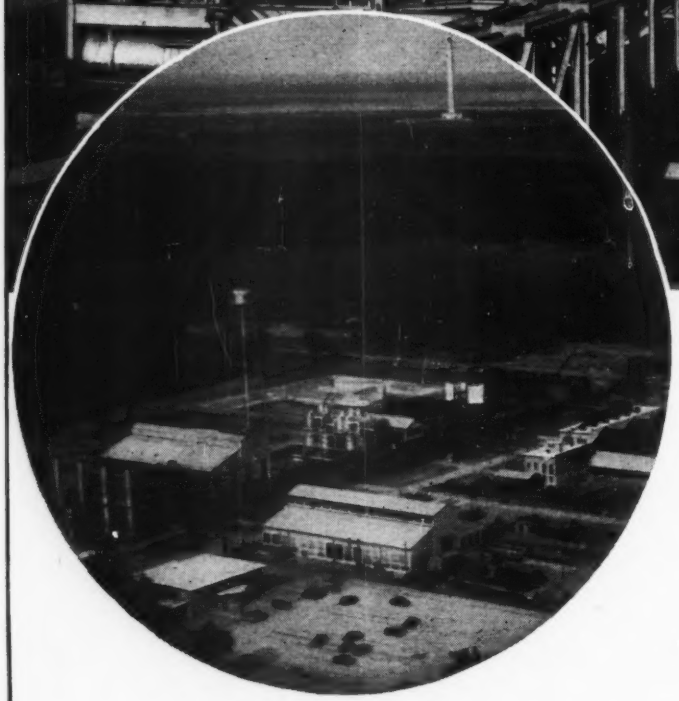

time saver
HOWCO
RETRIEVABLE
CEMENTER
The Howco Retrievable Cementer operates in three ways to save time in squeeze cementing. Because it is run on drill pipe or tubing, requiring no floating, it goes down faster. Because it locates perforations quickly, it gets the job done sooner. And because there is no metal to drill, there is a very important saving of rig time. Ask your nearest Howco representative.
HALLIBURTON OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA

Bethlehem Builds *ALL-WELDED* STORAGE TANKS

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Fabricated Steel Construction
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





WE'RE PROUD OF DIAMOND'S NEWEST CHEMICAL WORKS

Diamond Alkali Company's newest chemical plant, the Houston Works on the Houston Ship Channel, recently went on stream, manufacturing chlorine and caustic for what it's able young president, R. F. Evans, so aptly described as "the living, growing, expanding chemical industry." Brown & Root, Inc. are proud to have been selected for engineering and construction of this great plant—proud of the part we have in the process industry in the Southwest, which is fast securing its position as a world chemical capital.

BROWN & ROOT, Inc.

P. O. Box 2634 Houston 1, Texas

The FANMIX BURNER gives you more heat from gas or oil

Increase Boiler Ratings On Present Or Planned Equipment

In all types of Coppus-Dennis FANMIX Burners — straight gas or combination gas-oil — we utilize the energy of the fuel under pressure to drive the burner fan and deliver air in the proper proportion to the fuel flow. This exclusive "pinwheel action" *mechanically* mixes fuel and air in exactly the right proportions for truly radiant, non-luminous heat.

The result is uniform temperature everywhere in the combustion chamber — no drifting "hot spots" — and complete combustion under all conditions. That's why you can release more heat into your present furnace — why in new installations you get more heat into smaller furnace space.

FANMIX Saves On Both Old and New Installations

FANMIX can easily be operated with your present furnace and stack, requiring only minor changes in other equipment. Or if you're planning on new boilers, remember that FANMIX relieves the furnace from the burden of mixing, creates its own forced draft and takes smaller pipe sizes. Which means you can plan on reduced combustion space, less stack, no forced draft equipment and lower installation costs all around.

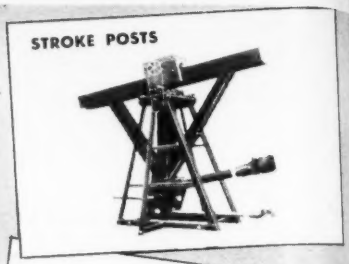
Get the Whole Story

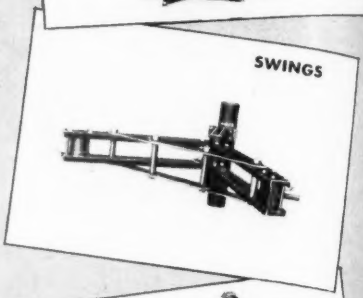
Coppus engineers FANMIX Burners to meet individual requirements, providing complete control over heat pattern and combustion . . . Learn more about how "pinwheel action" can step up *your* boiler performance to peak efficiency and economy — as it is doing throughout industry. Send for Bulletin 410-5. Coppus Engineering Corporation, Worcester 2, Mass. Sales Offices in THOMAS' REGISTER. Other Coppus "Blue Ribbon" Products in BEST'S SAFETY DIRECTORY, CHEMICAL ENGINEERING CATALOG, and REFINERY CATALOG.

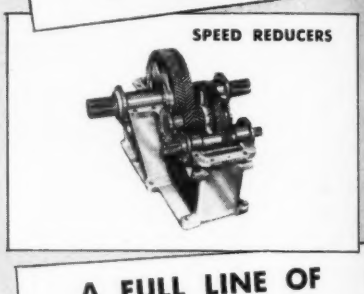
COPPUS ENGINEERING CORP.
272 Park Ave.
Worcester 2, Mass.
Please send Bulletin 410-5 to:
Name.....
Company.....
Address.....
City.....Zone....State.....

For Trouble-free pumping ...go ALL-AMERICAN

FOR 24 YEARS American equipment has been helping to lower pumping costs by giving years of trouble-free operation. Today American equipment is better than ever. The new American Pumping Units and other American items have been re-designed to A.P.I. specifications. For longer service with less servicing, specify AMERICAN for ALL your pumping equipment.







A FULL LINE OF SURFACE PUMPING EQUIPMENT

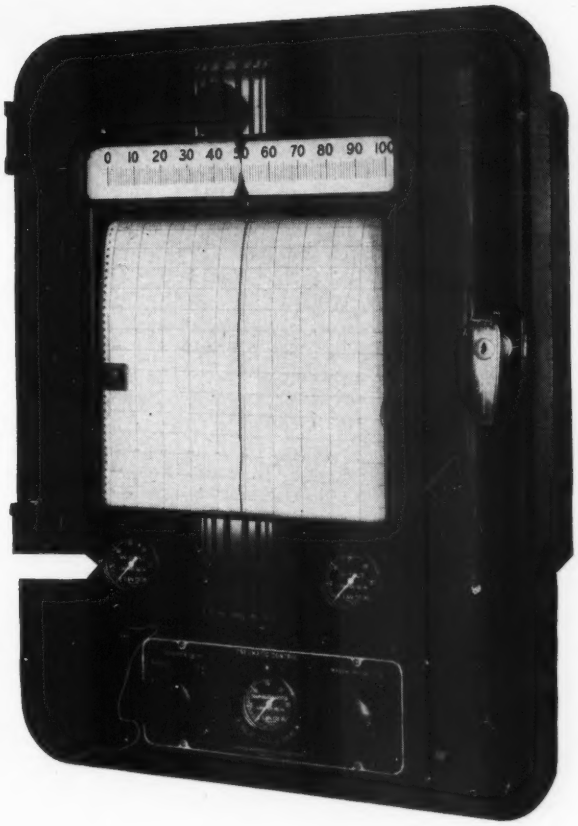
Crown Blocks ... Swaged Nipples
Bull Plugs ... Rod Line Carriers
Hook Offs and other items.

Contact your favorite supply store or the nearest American office.

American Manufacturing Co. of Texas

FORT WORTH, TEXAS
Phone 8-2301
KILGORE, TEX., Phone 138 • ODESSA, TEX., Phone 3472
EXPORT OFFICE: Room 509, 475 Fifth Avenue, New York, New York

Since 1924



Even the Air-Gage Locations Tell You

You're Looking at the NEW L&N PNEUMATIC CONTROLLER

Quite a number of engineers have seen the new L&N Pneumatic Controller in actual use on a process. Many more have seen our process-like demonstration. And additional hundreds are going to see this Controller in the future—because its performance is head-and-shoulders above anything known before! You can spot it by looking for the Speedomax (or Micromax) instrument with air-gage windows in the door. When you see such an instrument, look for operating features like these:

Manual-To-Automatic Transfer is Bumpless, which means no lost time in putting production under profit-making automatic control. This new L&N Control is, of course, also bumpless when going from automatic control to manual. You haven't seen bumpless transfer unless you've seen this, because it's bumpless in both directions!

Smaller Process Swings. In some refineries, process swings have been reduced by ten to one because the control action begins to correct for each upset the instant it starts.

Faster Recovery from Upsets. L&N Control's action effectively compensates for much of the unfavorable effect of process lags and capacities. It brings the process exactly to the control point and holds it there, without any costly "hunting".

Fewer Control Adjustments. Complete L&N Pneumatic Control, including stabilized rate action, can handle wide variations in process conditions without being re-tuned to the process.

For a further description of the features of our Controller which will enable it to increase thru-put in your refinery, write to Leeds & Northrup Company, 4959 Stenton Avenue, Philadelphia 44, Pa.

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

LEEDS & NORTHRUP CO.

Jrl. Ad N-33A-700(1)

The Oil and Gas Journal, published Thursdays by The Petroleum Publishing Company. Entered as second-class matter at post office at Tulsa, Okla., under act of March 3, 1879. U. S. and foreign rates to the petroleum industry, $3 yearly. Copyright 1948.

MAINTENANCE COSTS?

That is the problem . . . here is the solution . . .

for the PETROLEUM INDUSTRY

DIVISION	TYPICAL MAINTENANCE PROBLEM	COATING RECOMMENDED
Refining	*Acid Sludge Tanks*—Sludge is especially rich in hydrogen sulfide and mercaptans which, in the presence of moisture, are so corrosive that tank roofs may last only a few months. Vapor space subject to corrosion from condensation and hydrogen sulfide gas.	*Interior*—No. 44 is recommended for extremely severe conditions. For milder exposures, No. 23 can be used. Both these AMERCOAT Coatings are unaffected by hydrogen sulfide and mercaptans. *Exterior*—No. 33 is highly resistant to weathering, chemical fumes, splash and spillage of petroleum products.
Production and Drilling	*Drill Stem*—Drill mud under high pressure. Corrosion caused by salt water. Stress corrosion cracking. Tubing, casing, sucker rods—Corrosion caused by hydrogen sulfide, salt water and sour crude. Equipment subject to electrolysis. Paraffin and gyp scale build-up in tubing.	AMERCOAT Tube and Tank Lining is abrasion resistant and is unaffected by electrolytic corrosion since it is a non-conductor. It has excellent adhesion and reduces friction loss in pipe. AMERCOAT is unaffected by salt water and hydrogen sulfide. AMERCOAT Tube and Tank Lining provides a dense, smooth surface and prevents corrosion caused by salt water and sour crude. It is unaffected by electrolytic action under gyp scale and its smooth, oil-impervious surface greatly reduces the build-up of paraffin in tubing. Reports show that AMERCOAT increased the life of well tubing over six times.
Transportation	*Tank Cars, Tank Trucks, Shipping Containers. Interior*—surfaces are subject to corrosion caused by petroleum products. In equipment used for transporting aviation gasoline, contamination is a factor. *Exterior*—These surfaces are subject to spillage of petroleum products and weathering.	*Interior*—No. 23 is recommended since it protects steel surfaces against corrosion caused by petroleum products. No. 23 is non-contaminating to petroleum products and offers ideal protection for aviation gasoline. *Exterior*—No. 33 is unaffected by the splash and spillage of petroleum products and resists the corrosive effects of weathering.

FOLLOW THE AMERCOAT LINE OF *most* RESISTANCE

Are you encountering excessive equipment maintenance costs due to surface failure? Whether your problem involves chemical corrosion, abrasion, weathering, prevention of product contamination or sanitation, you'll find exactly the right coating in the Amercoat line. Much tougher and many times as durable as ordinary paint, chemically inert and non-toxic, Amercoat insures protection against surface failure. It is easily applied by brush or spray to metal, concrete or wood. It dries quickly to form an extremely tough surface that will not chip or crack. To keep critical surfaces safe from harm — to keep maintenance costs at a minimum, you can depend on Amercoat. Write today for complete details.

FREE CORROSION MANUAL—Causes of corrosion and how to prevent them are fully covered in this booklet as indicated above. Since causes of corrosion vary in different fields, individual manuals have been prepared for each major industry. WRITE FOR YOUR COPY. SPECIFY INDUSTRY.

AMERCOAT DIVISION · AMERICAN PIPE AND CONSTRUCTION CO.

Dept. 11-A - 4809 Firestone Boulevard - South Gate, California

. . . holds a pre-set bit weight accurately on any rotary rig—increases bit life and bottom-hole time—assures maximum drilling speed at less cost!

Here's G-E's new *Automatic* Bit-weight Control, designed to hold any pre-selected weight on the bit accurately and automatically—regardless of drilling speed. Whether your rotary drilling rig is electrical, mechanical, or steam, automatic bit-weight control will give you these outstanding advantages.

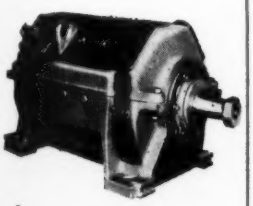
STRAIGHTER HOLES that get to the oil faster and cost less to drill.

LONGER BIT LIFE that cuts round trips for bit replacement and increases bottom-hole time.

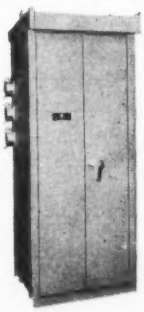
SIMPLER CONTROL that permits your driller to give more time and attention to other duties.

MAXIMUM DRILLING SPEED that comes from automatically maintaining the right weight on the bit.

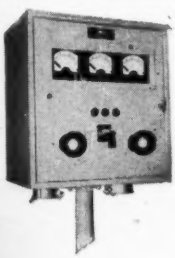
A new bulletin, complete with schematic diagrams, describes automatic bit-weight control. Send for your copy today.



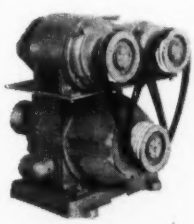
1.



2.

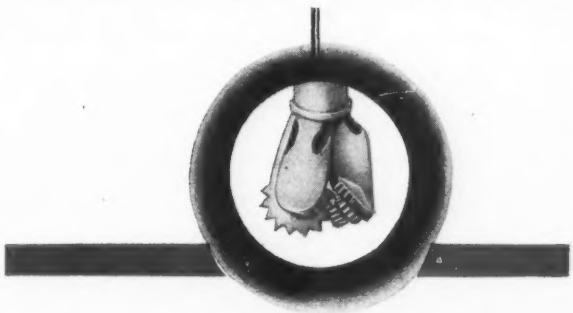


3.



4.

Only 4 Main Parts to the System: (1) Drag generator—a 15-hp, 725-rpm, Type MD-604 motor—connected to the draw-works through a speed reducer. (2) Main control panel, enclosed in weatherproof cabinet. (3) Operator's control panel. (4) Amplidyne-controlled regulating generator and exciter.



General Electric Company, Section A 654-84
Apparatus Department, Schenectady 5, N. Y.

☐ Please send me Bulletin GEA-5055, Automatic Bit-Weight Control.

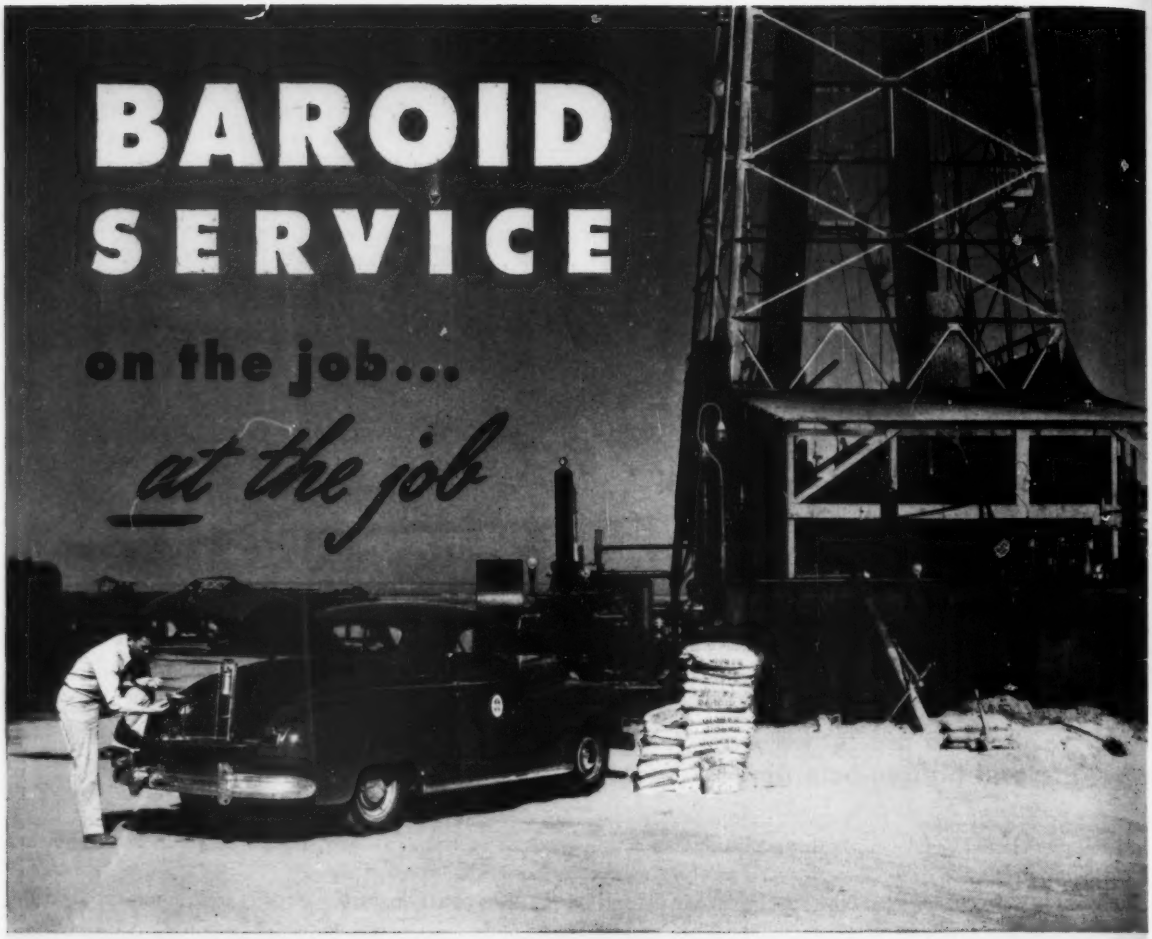
☐ In addition, please send me Bulletin GES-3485 which describes *Lease on the Future*, G-E's MORE POWER TO AMERICA film on oil-field electrification.

Name_____

Company_____

Address_____ City_____ State_____

GENERAL ELECTRIC



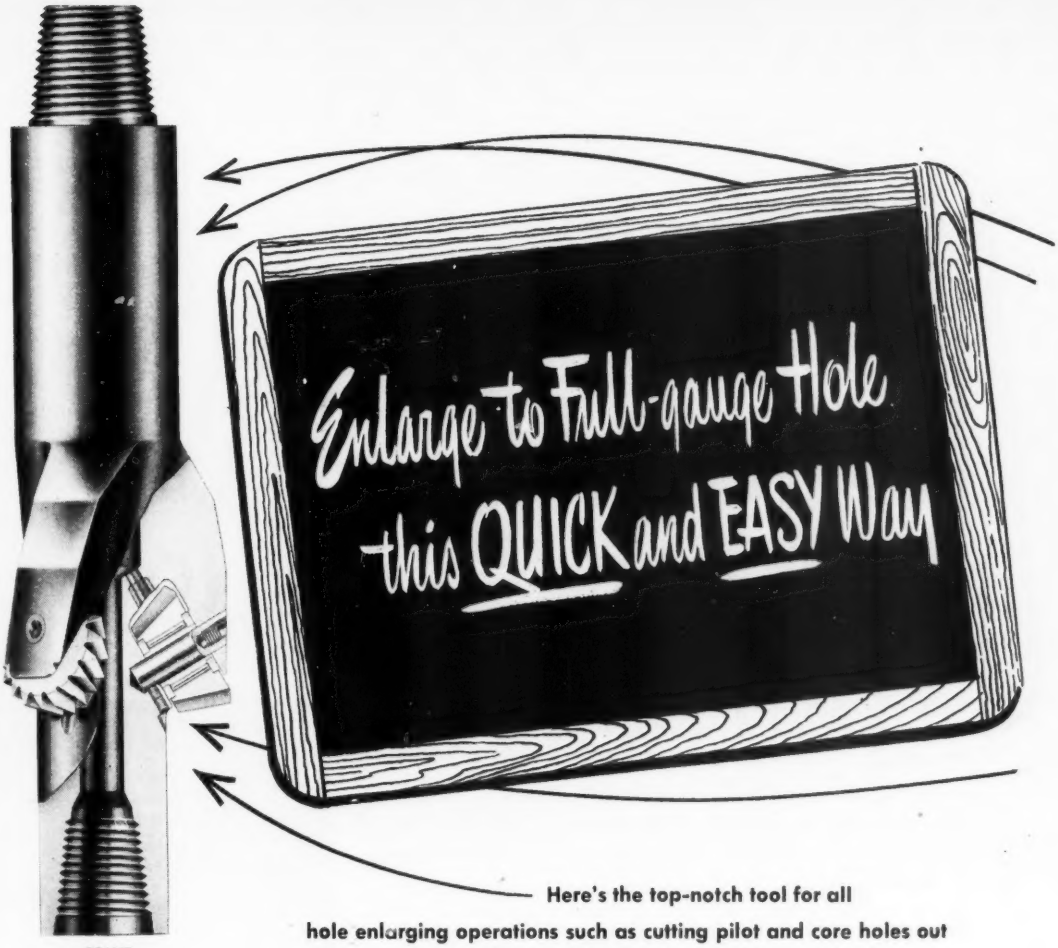
For over 22 years Baroid Sales Division has provided oil field operators with the finest drilling mud service obtainable. Today, over 100 carefully selected and thoroughly trained field service engineers are equipped with the latest testing facilities and backed by the most modern laboratory supervision in the industry.

This rigid adherence to accuracy and detail not only provides the correct solution to various mud problems in every active drilling area, but it has also earned the respect and confidence of major drilling operators.

Whether it be precision testing, procedure recommendations, or complete mud treatment supervision, Baroid field service engineers are the capable and competent answer to all of your drilling mud difficulties.

BAROID SALES DIVISION

NATIONAL LEAD COMPANY • LOS ANGELES, TULSA, HOUSTON



GRANT
HOLE ENLARGER

Here's the top-notch tool for all hole enlarging operations such as cutting pilot and core holes out to gauge. It's the Grant Hole Enlarger— and here are important reasons why it's outstanding for this work in any formation . . .

IT'S RUGGED—bodies are of heat-treated alloy steel . . . the three cutters are hard-faced for long wear and turn on husky precision roller bearings.

IT'S STREAMLINED—designed for maximum circulation area and with direct fluid jetting action against each cutter.

IT'S FAST—unique cutter design eliminates tracking, insures complete cutting action for positive removal of formation and straighter hole.

IT'S ECONOMICAL—cutters are replaceable right at the rig—an important time and money saver wherever you drill, and especially important in foreign fields.

Write for Bulletin 38 giving full details and specifications on the Grant Hole Enlarger — or see your nearest Grant representative today!

Proven GRANT Tools
Used Where Performance Counts

Hydrostatic Bailers	Bulletin No. 11
Liner Pullers	Bulletin No. 14
Pressure Releases	Bulletin No. 15
Casing Scrapers	Bulletin No. 17
Wall Scrapers	Bulletin No. 20
Bottom Hole Scrapers	Bulletin No. 21
Underreamers (Rotary)	Bulletin No. 24
Underreamers (Cable Tool)	Bulletin No. 27
Hole Enlargers	Bulletin No. 38
Reamers	Bulletin No. 43
Hydrostatic Perforation Cleaners	Bulletin No. 50
Dump Bailers	Bulletin No. 51
Roller Cutter Shale Bits	Bulletin No. 54
Sand Pumps	Bulletin No. 55
Impression Block Tool	Bulletin No. 56
Well Cleanout Equipment	Bulletin No. 57

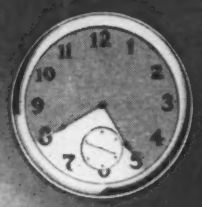
Write for Descriptive Bulletins on these GRANT Tools

GRANT
OIL TOOL COMPANY

Main Office and Plant: 2042 East Vernon, Los Angeles 11, California

Branches at Bakersfield, Avenal and Ventura, California, and at Odessa and Houston, Texas

FOR BETTER PERFORMANCE

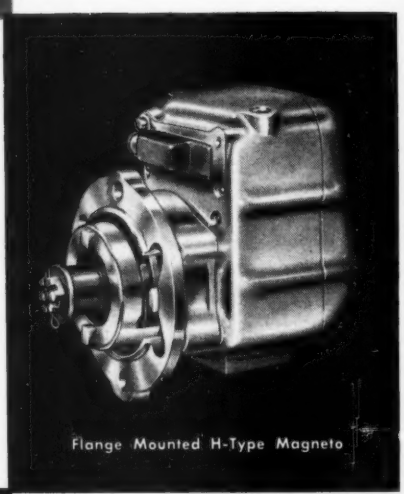
FROM START  TO STOP

CHANGE TO THE NEW

BENDIX-SCINTILLA

H TYPE MAGNETO

No magneto manufacturer in the world can refer to greater or broader experience in this field than the Scintilla Magneto Division. Therefore, when we present the new Bendix-Scintilla H-type magneto as the finest of its kind, we are on solid ground. A careful check of the distinctive features listed below—each of which carries definite engineering significance—should confirm our claim of better performance for all your one cylinder engines. Look into the advantages of the Bendix-Scintilla H-type magneto now; for full specifications contact your distributor or write the factory direct.



Flange Mounted H-Type Magneto

OUTSTANDING FEATURES YOU'VE ASKED FOR

- **Waterproof, high-tension outlet**
- **Higher voltage at starting speeds**
- **Constant spark over entire speed range**
- **Equipped with impulse coupling**
- **Compact and sturdy construction**
- **Waterproof "Plasticoil"**

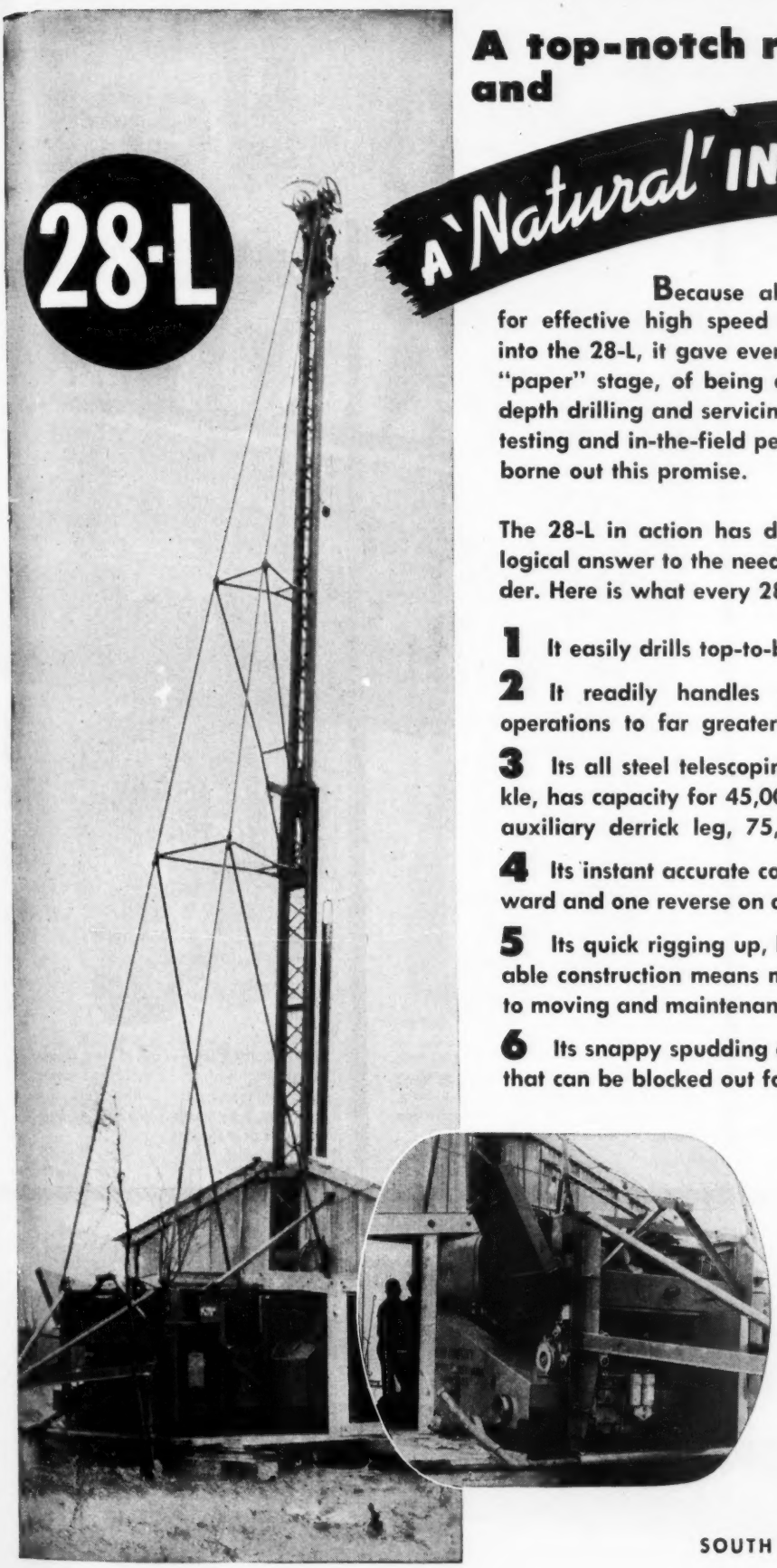
Base Mounted H-Type Magneto

SCINTILLA MAGNETO DIVISION of

Bendix AVIATION CORPORATION

BENDIX SCINTILLA

SIDNEY, NEW YORK



A top-notch rig on paper and A 'Natural' IN ACTION!

Because all of the features needed for effective high speed operation were designed into the 28-L, it gave every promise, as early as the "paper" stage, of being a "natural" for moderate-depth drilling and servicing operations. Subsequent testing and in-the-field performance have more than borne out this promise.

The 28-L in action has demonstrated why it is the logical answer to the need for a medium-sized spudder. Here is what every 28-L in the field has proved:

1 It easily drills top-to-bottom to 2500 feet.

2 It readily handles drilling-in and servicing operations to far greater depths.

3 Its all steel telescoping derrick, with casing tackle, has capacity for 45,000 pounds static load; with auxiliary derrick leg, 75,000 pounds.

4 Its instant accurate control, with two speeds forward and one reverse on all drums, means *fast* work.

5 Its quick rigging up, high portability, and desirable construction means minimum "down" time due to moving and maintenance.

6 Its snappy spudding action, with shock absorber that can be blocked out for deep drilling, means real drilling speed even in the tough formations.

7 Its all-round design is *right* for its range of work!

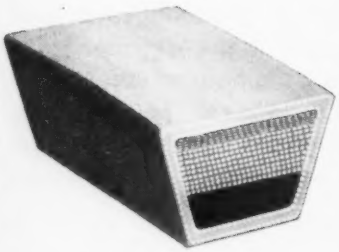
15846

Ask for complete details!

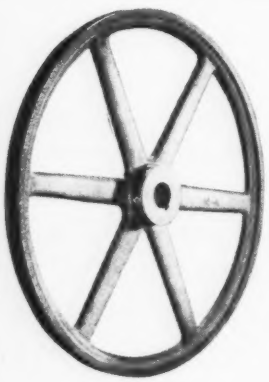
BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

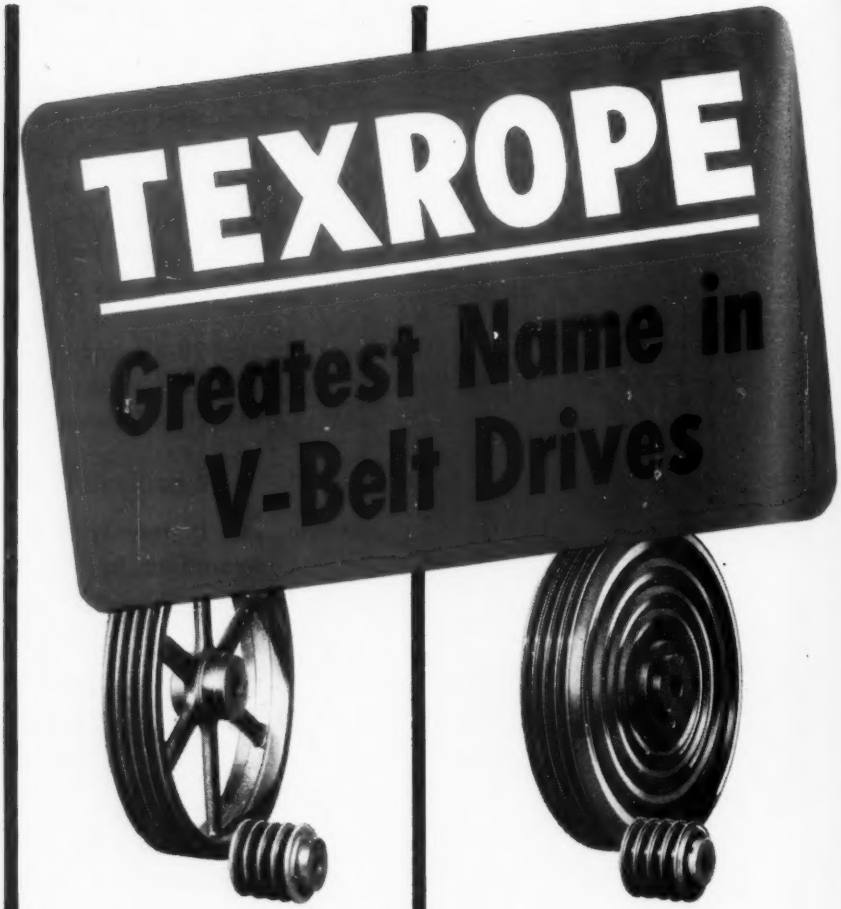
Fills Every Need



***TEXROPE* SUPER-7 V-BELTS** — All sizes and sections in fractional hp, standard, and wide range. Types to suit all operating conditions. Rayon cord and steel cable construction available for special applications. *All standard sizes available from stock.*



***TEX-IRON* SHEAVES**—Light weight cast iron sheaves for fractional and low horsepower use. Single groove only. Bored integral hub. Fine grain cast iron. Precision machined. Finest low-cost sheave. *All sizes available from stock.*



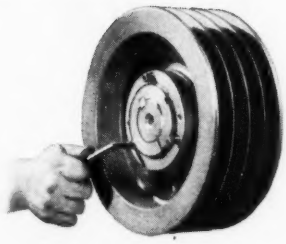
***TEXDRIVE* SHEAVES** — Sturdy cast iron sheaves for 1 to 25 horsepower applications. 1 to 6 grooves for A and B belts. Light but strong. Best all-purpose cast iron sheave. *All sizes and bores from stock.*

TEXSTEEL SHEAVES — Pressed steel sheaves for applications from ¼ to 25 horsepower. Light weight and rigid. Rolled edges. 1 to 6 grooves, A or B belts. *All sizes and bores available from stock.*

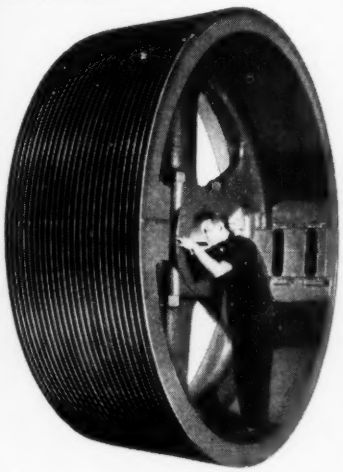
BEST DELIVERY IN THE INDUSTRY!

FINEST ENGINEERING TALENT!

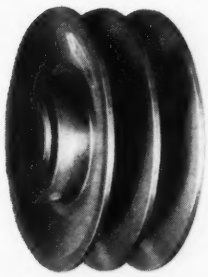
for V-Belt Drives!



***MAGIC-GRIP* SHEAVES** — Semi-steel casting with interchangeable, patented taper bushings. On and off in a jiffy. Cannot shake loose. 2 to 12 grooves for B, C and D belts. 2 to 250 horsepower. *All sizes available from stock.*

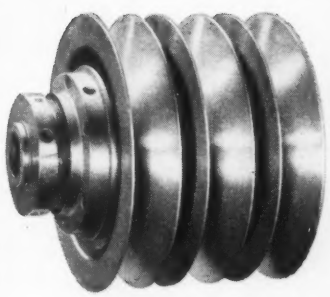


STANDARD CAST IRON SHEAVES — Made to order from stock patterns. 1 to 14 grooves for A, B, C, D, or E belts. 1 to 1000 horsepower. Split sheave or split hub. Good delivery. *Check your Texrope dealer or A-C District Office.*

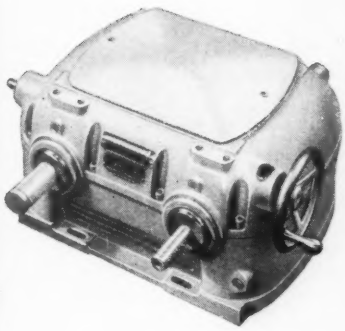


***VARI-PITCH* STANDARD SHEAVES** — Speed range of 9% to 28% on drives of 1 to 300 horsepower, using A, B, C, D, or E belts. 2 to 10 grooves. Available with Motion Control or Stationary Control. Good delivery. *Check your Texrope dealer or A-C Office.*

SPECIAL CAST IRON AND STEEL SHEAVES — Any number of grooves, A, B, C, D, or E belts. Engineered for applications up to 6000 horsepower. Foundry and machine shops equipped to handle work of any size. Good delivery. *Check your Texrope dealer or A-C District Office.*



***VARI-PITCH* WIDE RANGE SHEAVES** — Speed range up to 100%. 1 to 4 grooves, Q and R belts. Fractional to 30 horsepower. Stationary and Motion Control. Good delivery. *Check your dealer or A-C Office.*



***VARI-PITCH* SPEED CHANGERS** — Wide Range Vari-Pitch sheaves controlled by single handwheel. Capacity: 1½ to 75 horsepower. 375% speed range. For quick speed changes and close control. Good delivery. *Check your Texrope dealer or A-C Office.*

NOW YOU CAN GET nearly every standard V-belt drive component from Texrope stocks. Even on non-stock items, Texrope delivery is the best in the industry. And Texrope is the *only* brand that meets every V-belt need. Whatever you need in V-belt drives, call your Texrope dealer or A-C Office.

World's greatest store of V-belt engineering knowledge has been condensed into the 144 page Texrope Pre-Engineered Drive book. Covers 90% of all V-belt drive requirements. Makes selection easy as looking up a telephone number. Write for Bulletin 20 B 6956 or see your A-C Dealer or District Office.

ALLIS-CHALMERS, 1059A SO. 70 ST. A 2547
MILWAUKEE, WIS.

Texrope, Super-7, Vari-Pitch, Magic-Grip, Tex-Iron, Tex-steel and Texdrive are Allis-Chalmers Trademarks.

Texrope Super-7 V-belts result from the cooperative research of Allis-Chalmers and B. F. Goodrich; and are sold only by A-C dealers and offices.

ALLIS-CHALMERS

Originators of the Multiple V-belt Drive for Industry

Industry is on the Move .... Westward

UNION PACIFIC RAILROAD COMPANY
OMAHA 2, NEBRASKA

G. F. ASHBY, PRESIDENT

To American Industry:

The Union Pacific West offers industry proximity to products of ranch, mine and forest...ample power, fuel, water...healthful living conditions in scenic, recreational regions...and native-born, high-type labor.

Our faith in the future of this vast territory is confirmed by our current 200-million-dollar investment program for new equipment, improved and expanded facilities to provide shippers and travelers with the utmost in rail transportation.

We are at your service.

Yours very truly,

G F Ashby

President,
Union Pacific Railroad

George F. Ashby

* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

Unite with Union Pacific in selecting sites and seeking new markets in California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming.

*Address Industrial Department, Union Pacific Railroad
Omaha 2, Nebraska

UNION PACIFIC RAILROAD

Road of the Daily Streamliners

What's YOUR Production Problem

Gas
Sand
Gravity
Temperature
Corrosion
Depth

Axelson has manufactured deep well plunger pumps for more than half a century. Installations have been made and performance observed in fields the world over. Whenever and wherever a problem has arisen, Axelson has had a satisfactory, time-saving, money-saving answer in one of its 4 basic pump designs.

The benefit of this wide experience is yours thru your nearest Jones & Laughlin Supply store. Here you'll find friendly assistance with any production problem.

Export: 230 Park Ave., New York 17, N. Y., U. S. A.

Never Junk an Axelson Pump

Your Jones & Laughlin Supply store stocks Axelson pump parts. Many stores have completely manned and equipped Axelson pump repair shops. Use these facilities. Thru them the profitable life of an Axelson pump can be prolonged indefinitely.

JONES & LAUGHLIN SUPPLY COMPANY

Stores and Offices in 17 States

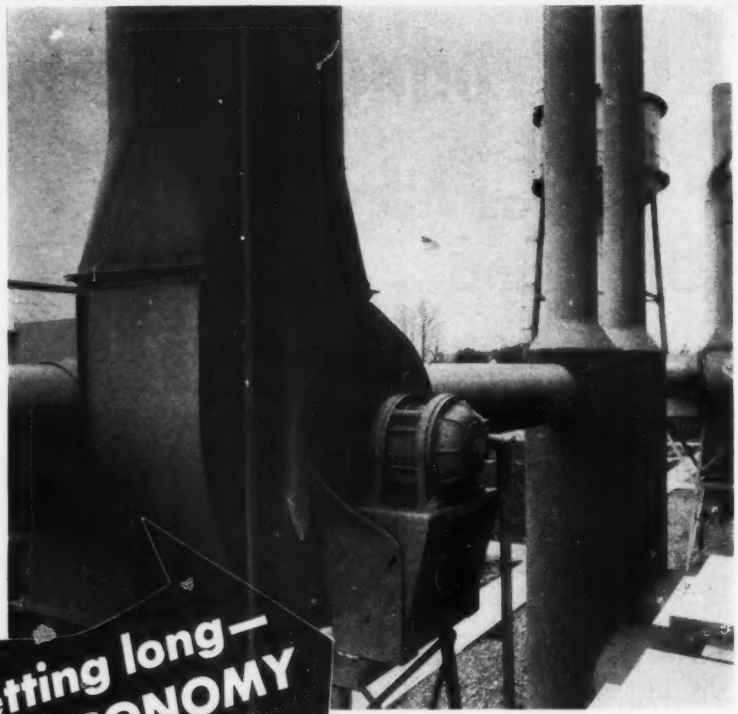
Subsidiary of Jones & Laughlin Steel Corporation

General Office

TULSA, OKLAHOMA

J&L STEEL

AIR EQUIPMENT TO HELP YOUR BUSINESS



"Buffalo" Limit-Load Fan on main-line exhaust service at prominent midwest pipe line station.

Getting long-run ECONOMY into the air Job!

"Buffalo" LL FANS

ECONOMY, because "Buffalo" Fans require so little attention on the job! Blades, housings, wheels, shafts and bearings are built to "STAND UP TO THE JOB" on a 24-hour schedule—with endurance to spare. And, as thousands of "Buffalo" users will tell you, they move "a lot of air with a little power". The "LL" size range lets you pick the exact capacity you need—right on up to 500,000 dfm. No fear of overloading the motor, either, because every "Buffalo" LL has the "Limit-Load" characteristic.

When you buy a fan, buy one with long-run economy built into it—a "Buffalo" Fan. *Write us about your air problem—we have the fan for it!*

5th Edition!

A "Must" For Every Engineer!

FAN ENGINEERING, 5th Edition, offers you 808 pages of latest facts on air problems, including: fans, air flow, sound laws, heat, cooling, drying, air properties, humidity, air conditioning!

ORDER YOUR COPY NOW!

Price $6.00

Postpaid in U. S. A.

BUFFALO FORGE COMPANY

525 Broadway Buffalo, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

Branch Offices In All Principal Cities

FANS by "Buffalo"

EQUIPMENT FOR

★ VENTILATING

★ HEATING

★ COMFORT COOLING

★ PROCESS COOLING

★ AIR TEMPERING

★ AIR WASHING

★ EXHAUSTING

★ BLOWING

★ FORCED DRAFT

★ INDUCED DRAFT

★ PRESSURE BLOWING

★ CLEANING

★ DRYING

CUTTING AIR COSTS IN EVERY BRANCH OF INDUSTRY

ANOTHER RAYMOND JOB FOR GULF OIL

AT PORT ARTHUR, TEXAS—Raymond is widening a marginal wharf more than half a mile long by constructing another wharf 85 feet wide along its face. This project is at the marine terminal of the Gulf Refining Company where Raymond built the first section of the existing wharf in 1911.

Today's job of constructing the 2900-foot wharf calls for the following: Concrete deck totalling 142,500 sq. ft. – requiring 4600 cu. yds. of concrete. 677 vertical piles averaging 68 ft. in length. 254 batter piles averaging 73 ft. Resurfacing 70,000 sq. ft. of existing deck. Fender system and mooring bollards along the new face.

Work progressed in 500-foot sections while docking operations continued along the rest of the wharf. This large and complex project demonstrates Raymond's ability to meet special requirements of the client.

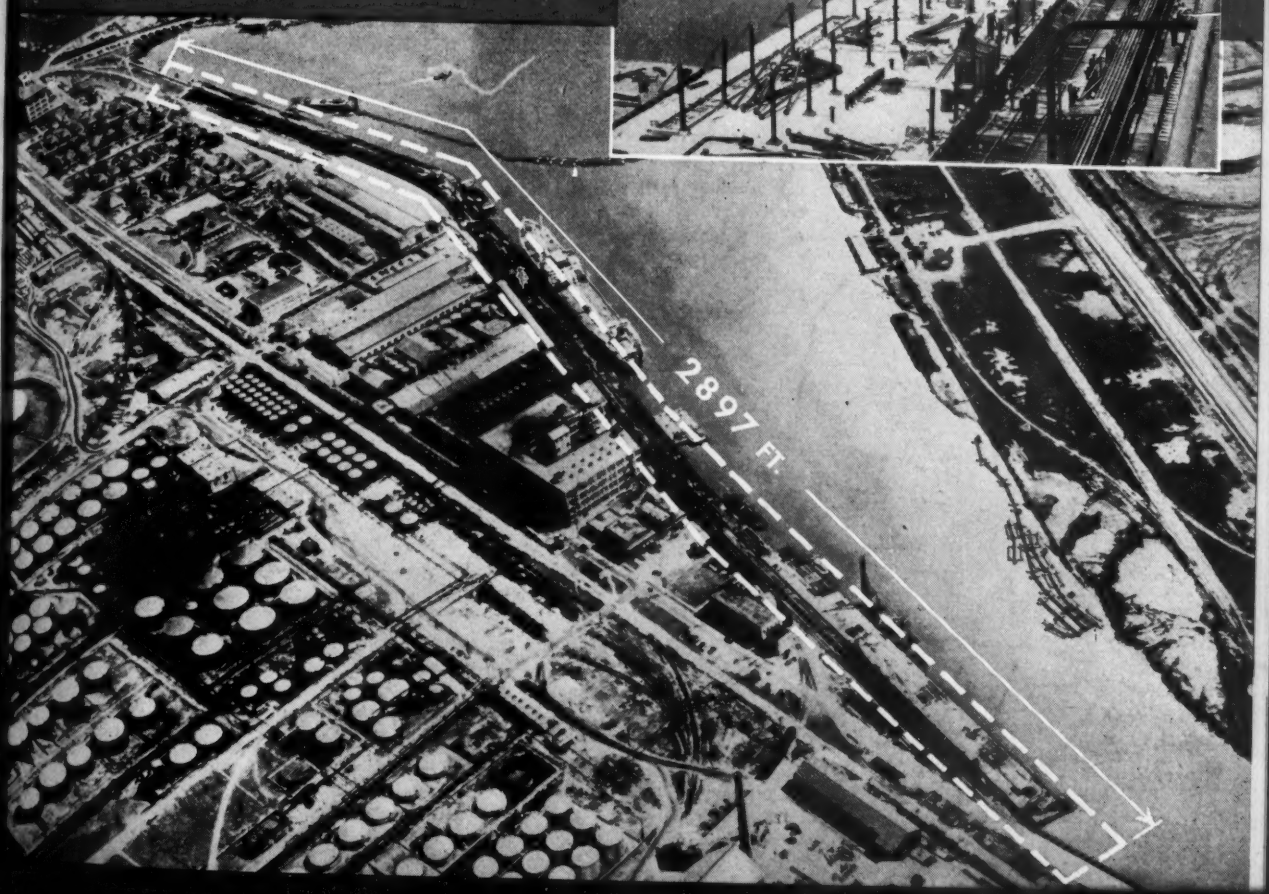
THE SCOPE OF RAYMOND'S ACTIVITIES—*includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements, borings for soil investigation.*

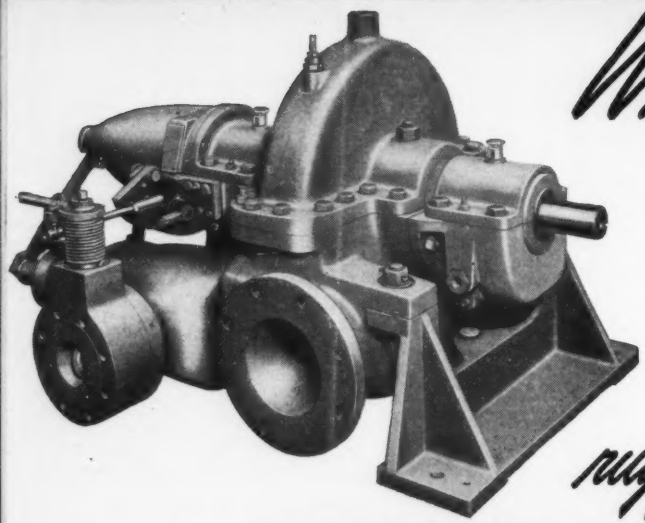
RAYMOND 51 YEARS FOUNDED IN 1897 OF PROGRESS

CONCRETE PILE COMPANY

Branch Offices in Principal Cities of United States and Latin America

140 CEDAR STREET · NEW YORK 6, N. Y.

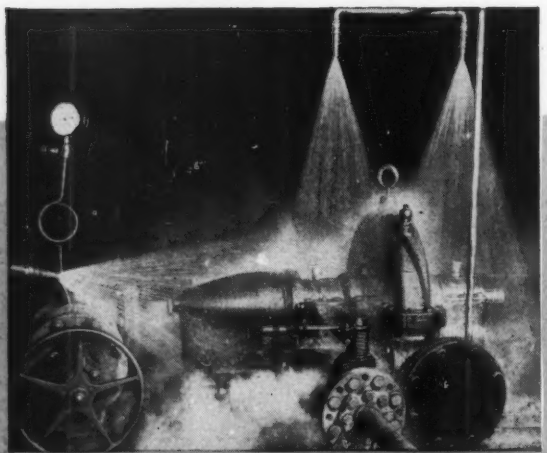




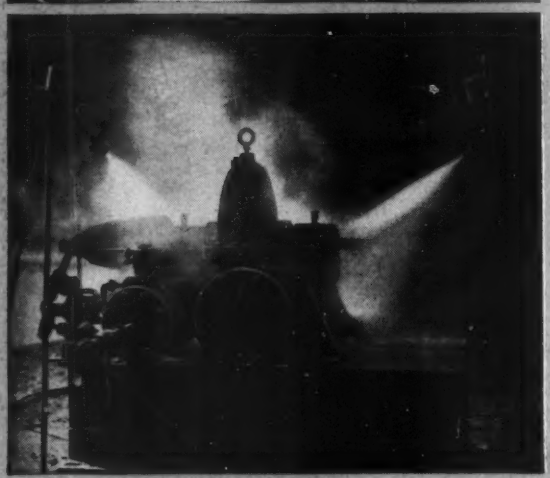
Where there's NO

COUNT ON

rugged · reliable · economical



Water-test periods running for hours and hours—with turbine operating and standing still—prove the effectiveness of TYPEE bearing seals against water contamination of the lubricating oil.



Dust-like, hard abrasive sprayed on the TYPEE operating at full speed . . . none of the abrasive entered the bearing housing—governing and overspeed mechanisms operated freely.

DUAL PROTECTION . . .

provides a double line of defense against overspeed. If speed should become excessive, Dual Protection positively shuts off the steam flow by tripping the governor valve and a rugged butterfly valve simultaneously.

WEATHER PROTECTION . . .

Exposure to all conditions—water, dust, and other foreign matter, outdoors or indoors . . . will not impair the operation of TYPEE turbines.

CENTERLINE SUPPORT . . .

The TYPEE method of support allows freedom of expansion and contraction of the casing without disturbing the alignment of the rotor shaft. The casing is positioned at the exhaust end by a kingpin which transmits pipe thrust to the foundation. A flexible channel-beam at the governor end allows for axial expansion.

RUGGED GOVERNOR HOUSING . . .

completely protects the governor assembly and shaft end. The housing is exceptionally strong and will withstand the abuse small turbines sometimes receive.

• • •

Get all the facts! Call your nearest Westinghouse office or write for Booklet B-3896, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh, 30, Pennsylvania. J-50487-A

SAVE ON SPARE PARTS

Interchangeability of parts between units—even between frame sizes—cuts down your investment in "spares". For example, the entire shaft-governor assembly can be removed from one unit and installed on another, without disturbing the rotors.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

TIME FOR "TIME OUT"

TYPE E GENERAL-PURPOSE TURBINES

Here's the mechanical drive turbine built to give trouble-free, economical performance for long periods of continuous operation . . . or to assure instant operation as a stand-by drive.

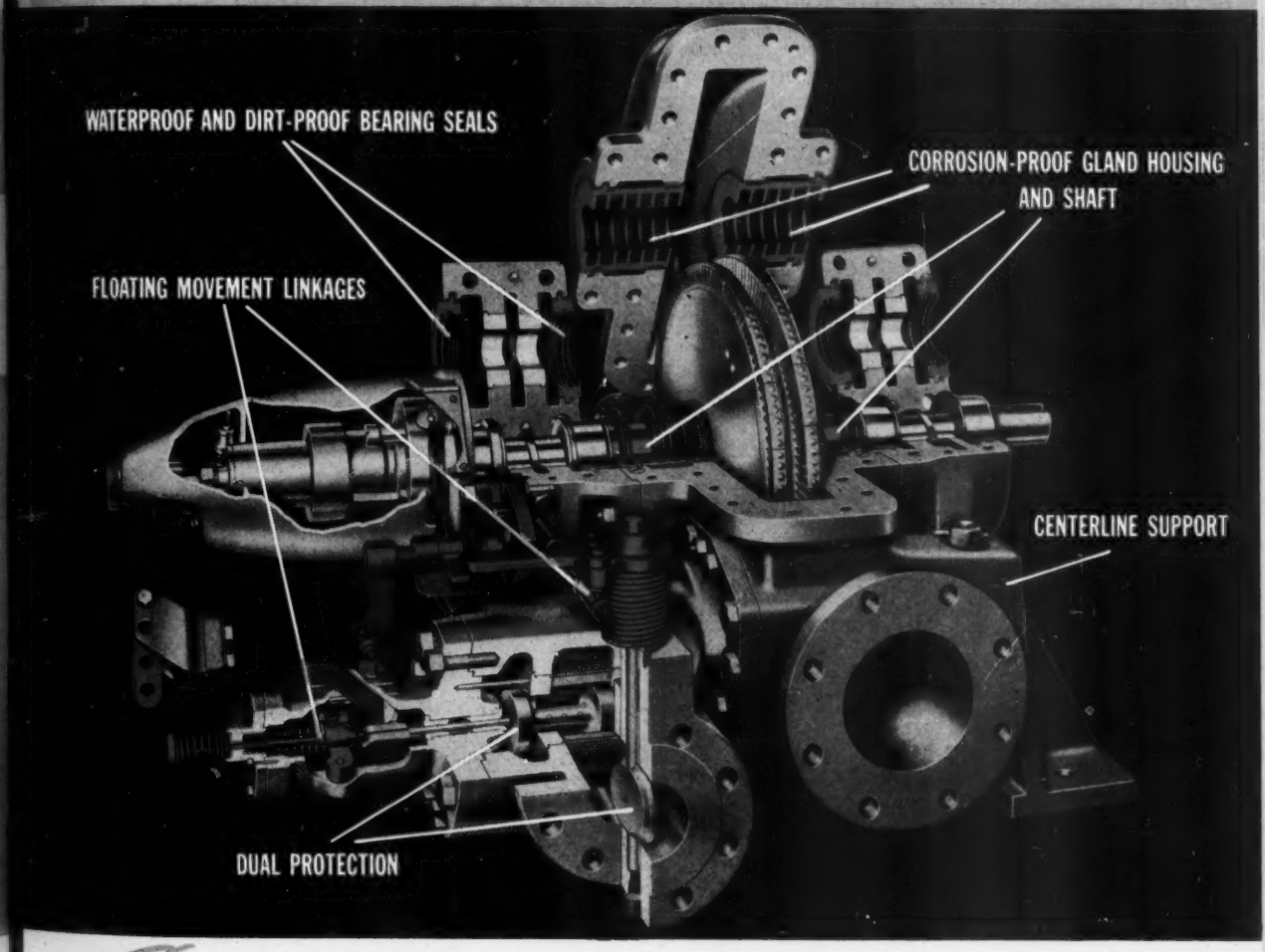
Outstanding features "built in" TYPE E for protection against overspeed, corrosion, misalignment, and interference of operation by water or dirt include: weatherproof bearing seals, corrosion-resisting gland zones, centerline support, Dual Protection against overspeed, floating movement of governing and trip linkages, and parts interchangeability.

Years of experience in building all types of turbines, and "millions of horsepower" of general-purpose turbines . . plus specialized knowledge of application engineering—are some of the factors that have gone into the TYPE E turbine design and construction.

Get the facts. Call your nearest Westinghouse office for booklet B-3896, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

YOU CAN BE SURE... IF IT'S Westinghouse

CHECK THESE FEATURES!



Steam Headquarters

WESTINGHOUSE

Producing from Multiple Zones

It's not so easy to get a *good* packer setup in multiple zone work; you know it yourself. That's why so many completions of this kind use Lane-Wells packers throughout: because every Lane-Wells packer has been engineered to do a specific job well, and engineered by men who really know downhole conditions and oil country operations. That's why Lane-Wells packers not only give you positive pack-off, — when, where, and as long as you want it — but come out when you pull them, still good for long future service. That's *real* economy.

A typical setup for multiple zone production might use, top to bottom:

SD — a casing-to-casing, valveless anchor packer of extra-large inside diameter.

COC — a casing-to-casing (or casing-to-tubing), valveless, hook wall packer, thin-walled to allow minimum clearance between casing strings.

BOC — a casing-to-tubing hook wall packer with circulating valve and bypass which allows easy running through fluid.

Your Lane-Wells representative can give you full details on *all* Lane-Wells packers—sizes, prices, applications, and will be glad to do it.

LANE WELLS

for Packers

General Offices, Export Offices and Plant: 5610 SO. SOTO STREET, LOS ANGELES 11, CALIFORNIA

24 HOUR SERVICE • 45 BRANCHES

LOS ANGELES • HOUSTON • OKLAHOMA CITY

Welcome to the 28th Annual Meeting of the American Petroleum Institute

Once again we're delighted to welcome you to Chicago. Please accept our best wishes for a pleasant visit and a successful convention.

Standard Oil Company
(INDIANA)

STANDARD
STANDARD SERVICE

Sure, they look alike

but...

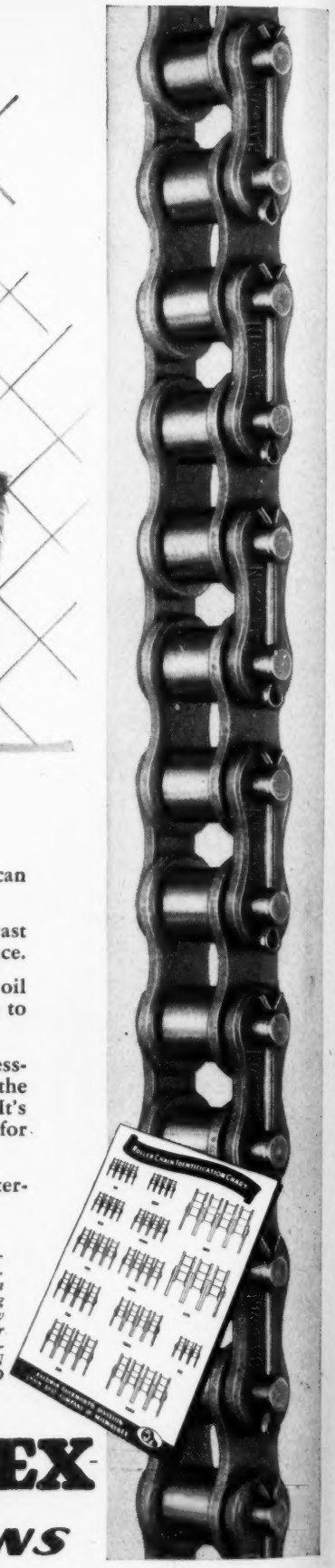
... look-alike doesn't tell the story. Pedigree, breeding, training can make one a blue-ribbon winner ... the other a "curbstone setter."

Similarly with roller chains, even though they look alike, there's a vast difference in pedigree and breeding that drastically affects performance.

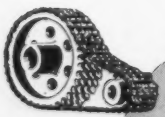
Baldwin-Rex Roller Chains are the "blue ribbon" winners among oil field chains ... have important advantages that mean greater service to your rigs.

For example, Baldwin-Rex Multiple Width Roller Chains have a press-fit of the inner side plates on the pins ... a feature that eliminates the motion between pin and side plate, and prevents early pin failure. It's just one of the many features that make Baldwin-Rex the best chain for modern drilling rigs.

Next time don't ask for roller chain ... *ask for Baldwin-Rex.* It is interchangeable with any corresponding size roller chain.



Send for your free copy of this time-saving wall chart of Oil Field Roller Chains. All you have to do is compare your worn roller chain with the corresponding drawing on the chart and order the new Baldwin-Rex Chain by number from your local supply store. BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY, 357 PLAINFIELD STREET, SPRINGFIELD 2, MASS.



BALDWIN·REX

ROLLER CHAINS

"Let's see the proof

Down-to-earth facts for trucking men who know what they want...and how they want it!

YOU'VE HEARD top trucking men say it. You've probably said it yourself—"I can't run my truck line on talk, I've got to know exactly the kind of performance I'll get *before* I buy any truck!"

Any trucking man worth his salt will agree this is the smartest way to buy.

That's why Reo offers you signed, sealed and sworn Notarized Proof of Reo performance

Reo gives you NOTARIZED PROOF that Reo trucks, with up to 15 inches less wheelbase than comparable model trucks, are more maneuverable. They turn in a close, tight radius. Reo trucks are easier to handle when backing, parking, steering, driving.

Reo gives you NOTARIZED PROOF that Reo More-Load design cuts inches off the wheelbase; allows a full payload with standard size truck bodies in a more compact unit. No other truck matches Reo More-Load design.

Reo gives you NOTARIZED PROOF that Reo engines are readily accessible for fast, easy service and maintenance. Exclusive Reo cowl-hinged hood lifts from front bumper line, allows mechanics extra room, speeds their work.

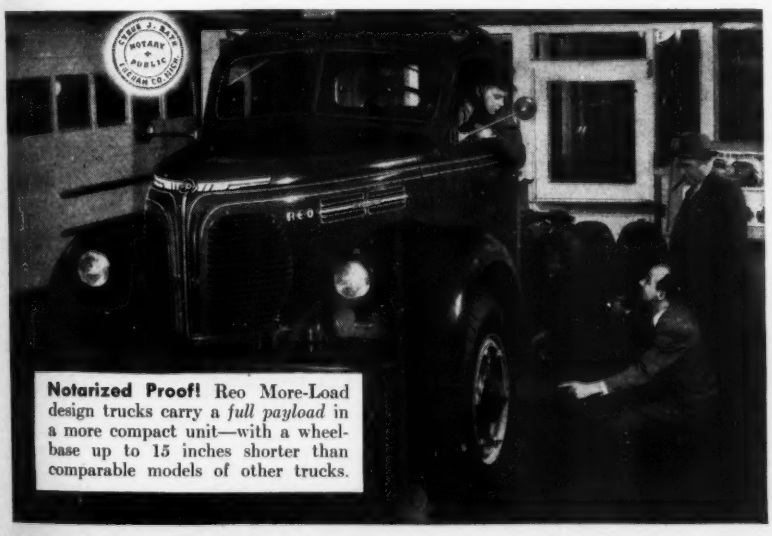
Reo gives you NOTARIZED PROOF that Reo trucks come equipped with extra features, such as Tocco (electric) hardened crankshafts, 7 main bearings, chrome-molybdenum iron blocks, extra-gauge steel frames.

Reo gives you NOTARIZED PROOF that the Reo line of trucks provides you with a wide choice of ready-to-roll truck and tractor chassis . . . with a variety of engines, wheelbases, and cab-to-axle dimensions.

REO MOTORS, INC., Lansing 20, Mich.

Notarized Proof! A larger percentage of Reo trucks have been in active service for over 10 years than any other medium or heavy duty trucks. This means Reo trucks last longest of any trucks in their class.

Notarized Proof! Nineteen round trips from Detroit to Los Angeles without mechanical trouble is the record this Reo Tractor set for its owner. Gas, oil and routine service were only costs on trips.



Notarized Proof! Reo More-Load design trucks carry a *full payload* in a more compact unit—with a wheelbase up to 15 inches shorter than comparable models of other trucks.

Notarized Proof! A Reo garage serviced major Reo units in 20% less average time than required on competing trucks. (Copies of complete affidavits available on request.)

REO
TRUCKS AND BUSES

See your REO dealer before you order any truck

Sure, they look alike

but...

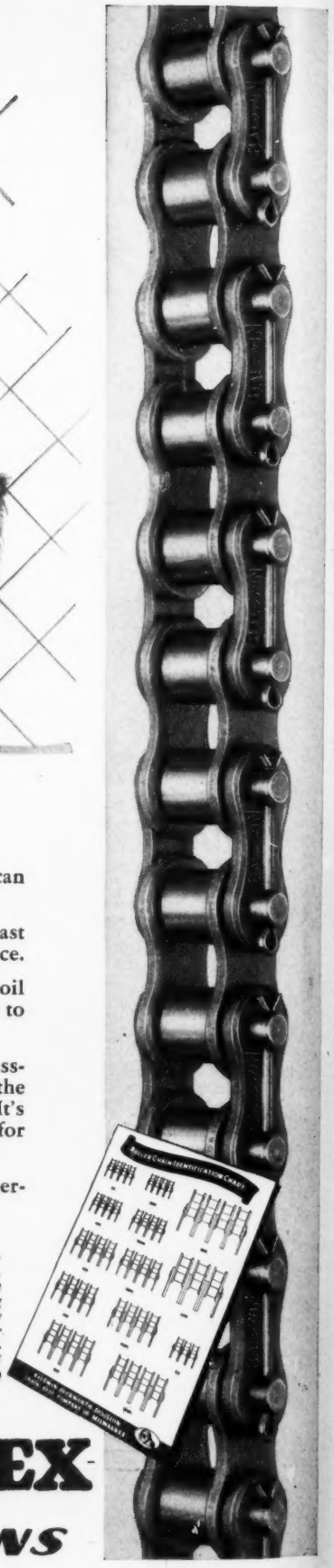
... look-alike doesn't tell the story. Pedigree, breeding, training can make one a blue-ribbon winner ... the other a "curbstone setter."

Similarly with roller chains, even though they look alike, there's a vast difference in pedigree and breeding that drastically affects performance.

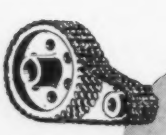
Baldwin-Rex Roller Chains are the "blue ribbon" winners among oil field chains ... have important advantages that mean greater service to your rigs.

For example, Baldwin-Rex Multiple Width Roller Chains have a press-fit of the inner side plates on the pins ... a feature that eliminates the motion between pin and side plate, and prevents early pin failure. It's just one of the many features that make Baldwin-Rex the best chain for modern drilling rigs.

Next time don't ask for roller chain ... *ask for Baldwin-Rex.* It is interchangeable with any corresponding size roller chain.



Send for your free copy of this time-saving wall chart of Oil Field Roller Chains. All you have to do is compare your worn roller chain with the corresponding drawing on the chart and order the new Baldwin-Rex Chain by number from your local supply store. BALDWIN-DUCKWORTH DIVISION OF CHAIN BELT COMPANY, 357 PLAINFIELD STREET, SPRINGFIELD 2, MASS.



BALDWIN·REX

ROLLER CHAINS

"Let's see the proof!"

Down-to-earth facts for trucking men who know what they want...and how they want it!

YOU'VE HEARD top trucking men say it. You've probably said it yourself—"I can't run my truck line on talk, I've got to know exactly the kind of performance I'll get *before* I buy any truck!"

Any trucking man worth his salt will agree this is the smartest way to buy.

That's why Reo offers you signed, sealed and sworn Notarized Proof of Reo performance

Reo gives you NOTARIZED PROOF that Reo trucks, with up to 15 inches less wheelbase than comparable model trucks, are more maneuverable. They turn in a close, tight radius. Reo trucks are easier to handle when backing, parking, steering, driving.

Reo gives you NOTARIZED PROOF that Reo More-Load design cuts inches off the wheelbase; allows a full payload with standard size truck bodies in a more compact unit. No other truck matches Reo More-Load design.

Reo gives you NOTARIZED PROOF that Reo engines are readily accessible for fast, easy service and maintenance. Exclusive Reo cowl-hinged hood lifts from front bumper line, allows mechanics extra room, speeds their work.

Reo gives you NOTARIZED PROOF that Reo trucks come equipped with extra features, such as Tocco (electric) hardened crankshafts, 7 main bearings, chrome-molybdenum iron blocks, extra-gauge steel frames.

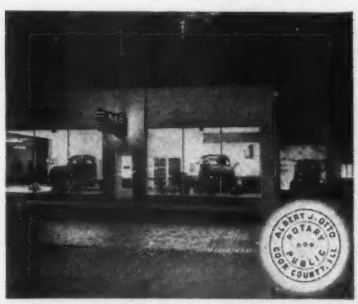
Reo gives you NOTARIZED PROOF that the Reo line of trucks provides you with a wide choice of ready-to-roll truck and tractor chassis . . . with a variety of engines, wheelbases, and cab-to-axle dimensions.

REO MOTORS, INC., Lansing 20, Mich.

Notarized Proof! A larger percentage of Reo trucks have been in active service for over 10 years than any other medium or heavy duty trucks. This means Reo trucks last longest of any trucks in their class.

Notarized Proof! Reo More-Load design trucks carry a *full payload* in a more compact unit—with a wheelbase up to 15 inches shorter than comparable models of other trucks.

Notarized Proof! Nineteen round trips from Detroit to Los Angeles without mechanical trouble is the record this Reo Tractor set for its owner. Gas, oil and routine service were only costs on trips.



Notarized Proof! A Reo garage serviced major Reo units in 20% less average time than required on competing trucks. (Copies of complete affidavits available on request.)

REO
TRUCKS AND BUSES

See your REO dealer before you order any truck

Penflex
"TWIN-LOK"

REVOLUTIONARY NEW DEVELOPMENT FOR EASY TRANSMISSION OF MATERIAL

Here's a new and different type of flexible metal hose scientifically designed to provide smooth flowing, flexible transmission of grain, dust, slag, insulation and other granular material. It is the new and revolutionary Penflex "TWIN-LOK"!

This new Penflex development offers all of the ruggedness of the well-known Penflex interlocked construction . . . plus an inner lining of metal that makes the inside of the tubing free of any obstructions . . . allows smooth, easy flow of material . . . reduces friction to a minimum. At the same time, this extra lining greatly reinforces the tubing without materially reducing the flexibility. Result is a new tubing that offers every industry-moving material pneumatically—real savings in time, money and maintenance.

Penflex "TWIN-LOK" is just another of the many developments of Penflex "Flexineering" which offers you complete service and products for the flexible, leak-proof transmission of liquids, air, gas or light solids. Penflex has a complete line of flexible metal hose, tubing and couplings from ⅛" I. D. to 30" for all purposes.

Write today for new catalog on Penflex "TWIN-LOK."

PENNSYLVANIA FLEXIBLE METALLIC TUBING COMPANY

7213 Powers Lane Philadelphia 42, Pa.

BRANCH SALES OFFICES—BOSTON • NEW YORK • CLEVELAND • CHICAGO • HOUSTON • LOS ANGELES

Penflex... HEART OF INDUSTRY'S LIFE LINES

TIMKEN 18-8 STEEL TUBES Shows the best combination of creep strength, oil corrosion resistance and oxidation resistance up to 1500°F.

TIMKEN SICROMO 9 M STEEL TUBES This steel possesses the maximum corrosion resistance of any of the steels below the stainless group.

TIMKEN SICROMO 7 STEEL TUBES For applications requiring better corrosion resistance than can be obtained with 5% Chromium type steels.

TIMKEN SICROMO 5 S STEEL TUBES For oxidation resistance to 1500°F. Good creep strength and corrosion resistance to 1300°F.

TIMKEN 4-6% CR MO STEEL TUBES For service up to 1200°F. Superior corrosion resistance. Less oxidation resistance than Sicromo 3.

TIMKEN SICROMO 3 STEEL TUBES For service up to 1200°F. Have excellent oxidation resistance and good corrosion resistance.

TIMKEN SICROMO 2 STEEL TUBES For service up to 1200°F., where better scale resistance is required than can be obtained with 2% Cr. ½% Mo. Steel.

TIMKEN 2¼% CR-1.0% MO STEEL TUBES For service up to 1150°F. Has greater resistance to creep than 2% Cr. ½% Mo. Steel.

TIMKEN 2% CR½% MO STEEL TUBES For service up to 1150°F. Intermediate corrosion resistance plus good creep strength, fair oxidation resistance.

TIMKEN D M STEEL TUBES For service up to 1150°F. This steel offers outstanding creep strength.

TIMKEN CARBON-MO STEEL TUBES For temperature up to 1000°F. Improved creep strength makes it safer than carbon steel.

TIMKEN CARBON STEEL TUBES Generally for service not exceeding 900°F., where corrosion and oxidation resistance are not important.

Want to solve your high temperature tube problem... *and get the best* LIFE/COST *ratio, too?*

WHATEVER your high temperature tube problem—heat, corrosion, pressure, or oxidation—chances are the Timken Company has the tube to solve it most economically.

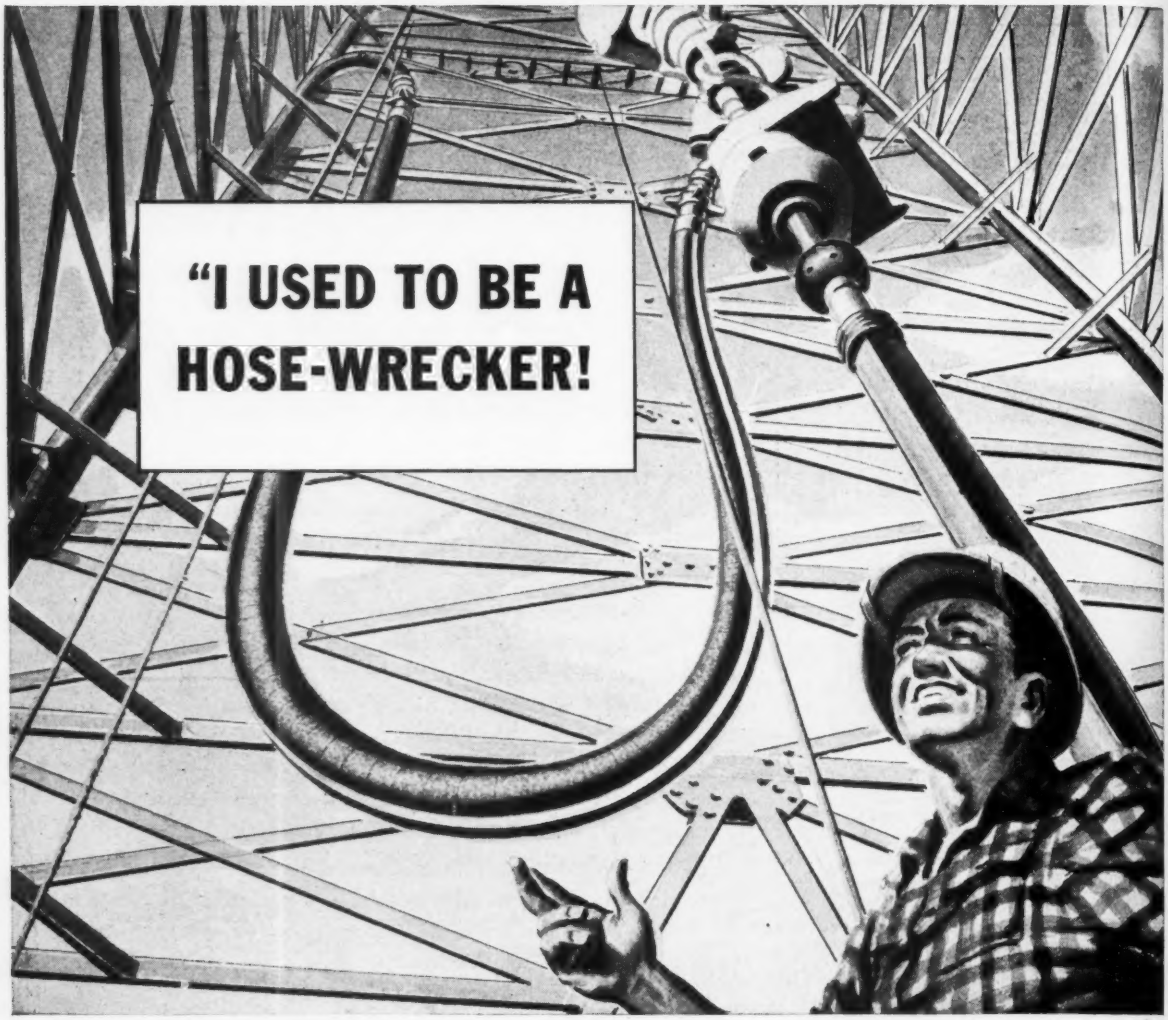
Each of the 12 steels listed here is tailor-made to meet specific operating conditions. By analyzing your requirements, metallurgists at Timken® can help you select the one steel which best meets your needs and which gives you *maximum tube life per dollar invested.* You can depend on their recommendations because 19 years of experience and research have made them the recognized authorities on high temperature tubing applications.

Whichever analysis is selected, you're sure of uniformly high quality from tube to tube and shipment to shipment. The Timken Company closely controls quality through every step in production.

To get the best life/cost ratio from *your* tubes, call upon the Timken Technical Staff today. For further information on Timken high temperature tubing, write for your copy of "Facilities and Products", The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

YEARS AHEAD—THROUGH EXPERIENCE AND RESEARCH

Specialists in alloy steel—including hot rolled and cold finished alloy steel bars—a complete range of stainless, graphitic and standard tool analyses—and alloy and stainless seamless steel tubing



. . . Until I learned the hose-standpipe formulas"

What he learned was that where rotary hose isn't long enough for mousehole connections there is straining and kinking at the swivel end. And he also learned that when the standpipe is too short the same thing results at the standpipe end.

U. S. Rubber Company Engineers recommend these simple formulas for standard applications:

$$\text{Standpipe height} = \frac{\text{Length of tool string plus 15 feet}}{2}$$

$$\text{Rotary hose length} = \text{Standpipe height plus 10 feet}$$

Drillers will readily see that hose of proper length does not undergo the straining and kinking at the ends that happens with hose that's too short. It will last its full lifetime, prevent shutdowns, reduce drilling costs.

In U. S. Rotary Hose the wire is applied with uniform tension in every ply, and the angle of the wire is scientifically controlled to meet diametric as well as longitudinal stress. This technique of application is called "Unitension" and endows the hose with extra strength demanded by today's terrific pressures in deep-well drilling.

For more information, write to Mechanical Goods Division, United States Rubber Company, 1230 Avenue of the Americas, New York 20, New York.

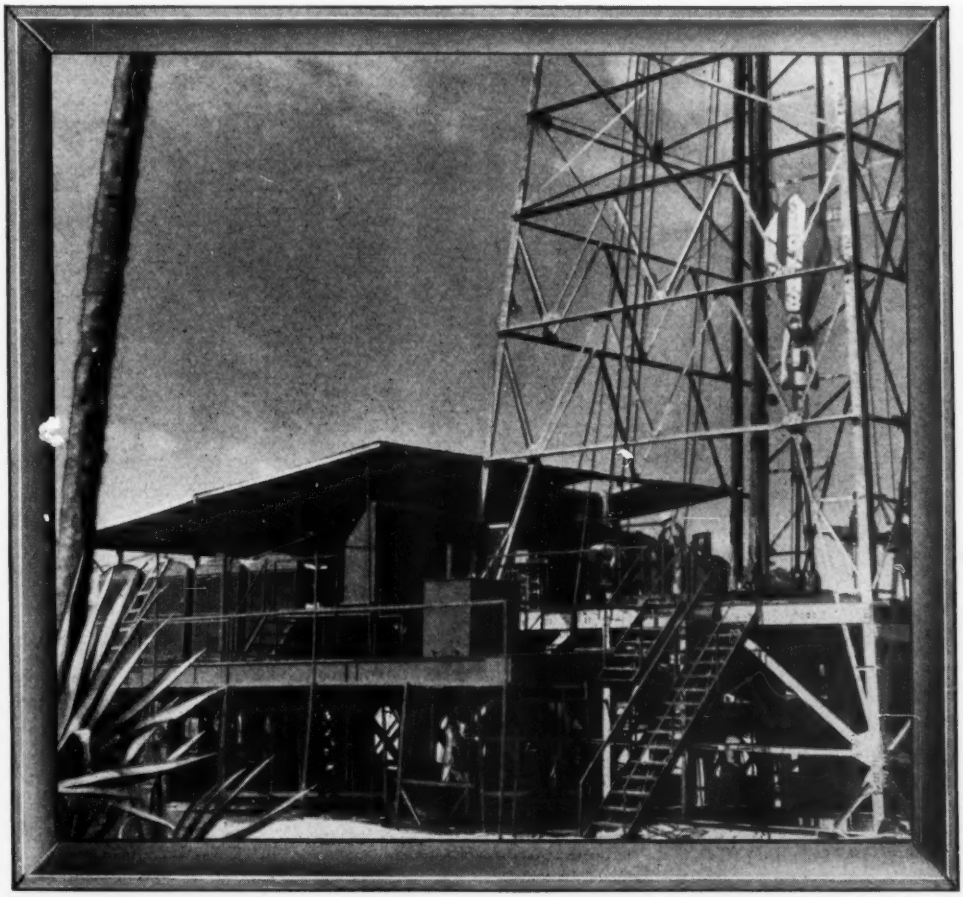
A product of

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES
RUBBER COMPANY

GYROL Fluid Drive

completes this picture!



Bahama Islands. Gyrol Fluid Drive pays off for operators here, too, by improving over-all performance in all 3 drilling operations, eliminating shock on draw works, rotary and engines, reducing maintenance costs and prolonging equipment life.

It will pay you to specify Gyrol Fluid Drive on the next rig you buy! Get the complete story NOW! Write for Bulletin 8219.

AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of American Radiator & Standard Sanitary corporation

AMERICAN BLOWER

GYROL Fluid Drive

FOR *Big Output* ...CHECK

WIDE WORK RANGE . . . digs to 54" wide, 23' below tracks . . . has 40½' digging reach.

EASY-OPERATING . . . big 37" power clutch cuts normal lever pull 90%, retains "feel".

LESS TIME OUT FOR MOVE-UPS . . . travels with turntable in any position. Separate clutch-and-brake control on each crawler.

QUICKLY CONVERTIBLE from pull shovel to shovel, dragline, or crane (30½ ton capacity).

This big Koehring 605 pull shovel has plenty of power, weight and stamina to put your cuts through in heavy rock excavation . . . plenty of range and trenching capacity for your largest lines . . . plenty of speed and dependability to give you steady, high production and completion, safely ahead of schedule.

You get rugged digging strength in every detail . . . from its heavy self-cleaning crawlers, cast, welded carbody, rigid turntable . . . to its compact upper machinery, easy-operating power clutches, rugged boom, and big 1½-cubic yard capacity dipper.

Ready convertibility to all standard excavator attachments extends the 605's big work capacity and operating economies to all your heavy jobs. Get all the facts from your local Koehring distributor TODAY. Ask him, too, about the smaller Koehring ¾-yard 304, and ½-yard 205 excavators, available on crawlers or pneumatic tires, . . . or write for literature.

KP828

KOEHRING HEAVY DUTY

KOEHRING COMPANY
Milwaukee 10, Wis.

Subsidiaries: KWIK-MIX • JOHNSON • PARSONS

THESE HEAVY-DUTY TRENCHERS

PARSONS 200 Wheel *Trenchliner*

50 DIGGING SPEEDS . . . to 20' per minute . . . can dig mile of pipeline trench a day.

TRENCHES UP TO 5½' DEEP . . . 15 to 26" wide.

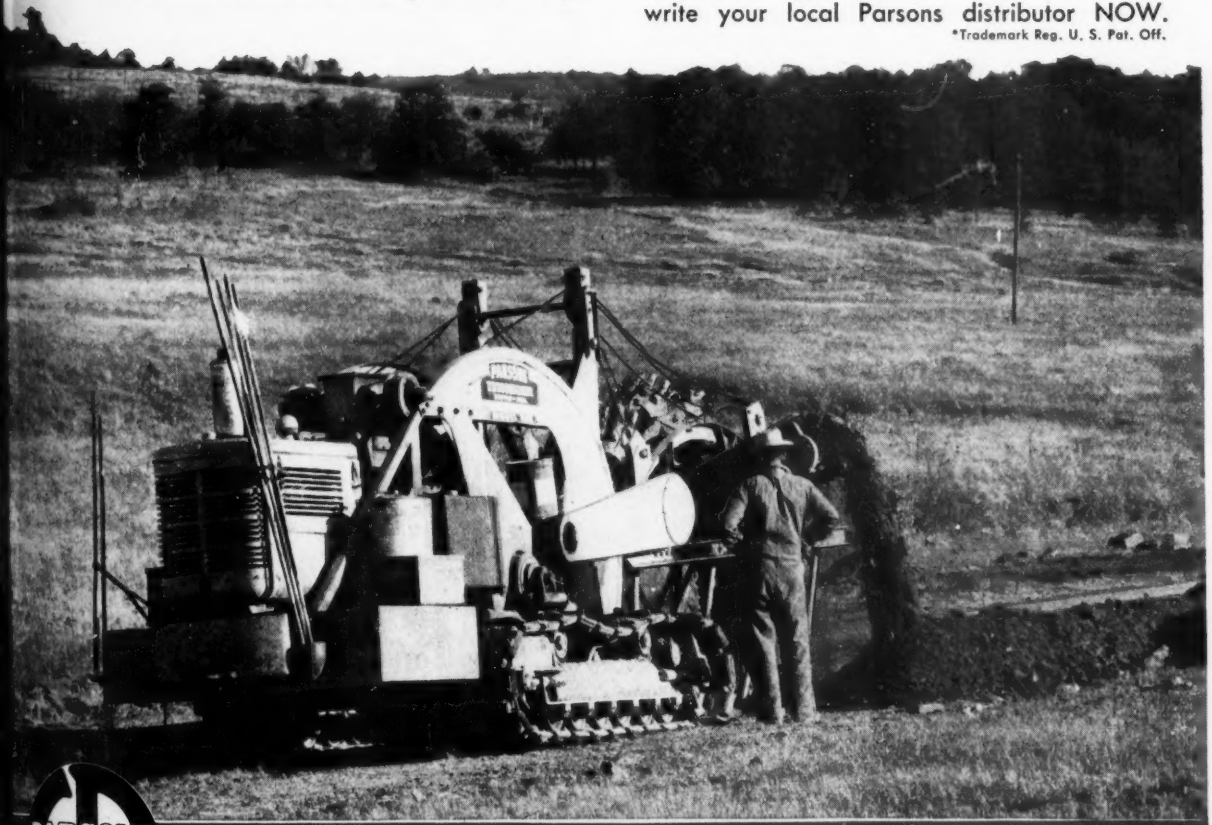
SAVES HAND TRIMMING . . . delivers clean, round-bottom trenches ready to receive pipe.

You can high-ball oil, gasoline and natural gas lines cross country at speeds up to a mile a day with this fast-digging Parsons 200 Wheel Trenchliner. And you can keep up this high-production day after day because of these Parsons heavy-duty features:

Heavy digging wheel is supported at 4 points, is firmly held at bottom, where digging pressure is greatest, by 2 double-wheel dollies. Arched wheel-frame is truss-bridge constructed, rigidly supports both digging wheel and conveyor . . . resists distortion, keeps wheel precision-aligned for accurate grading. All main operating gears are fully-enclosed, run in continuous oil bath . . . give you longer trouble-free service, cuts maintenance costs.

For complete facts on this modern pipeline Trenchliner . . . or on any of the 3 other heavy-duty ladder-type Trenchliner sizes . . . see or write your local Parsons distributor NOW.

*Trademark Reg. U. S. Pat. Off.

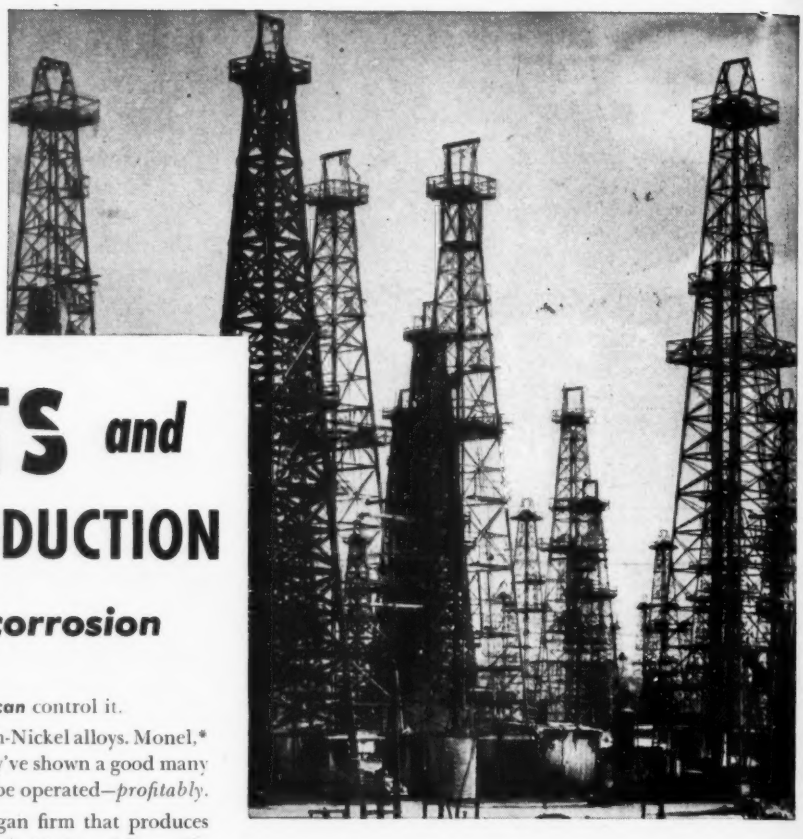


PARSONS HEAVY DUTY

The PARSONS COMPANY

Newton, Iowa

Koehring Subsidiary



How YOU can

CUT COSTS and INCREASE PRODUCTION

...by controlling corrosion

You can't stop corrosion. But you ***can*** control it.

Install equipment made with high-Nickel alloys. Monel,* for example. Or "K"* Monel. They've shown a good many producers that corrosive wells can be operated—*profitably*.

Take the experience of a Michigan firm that produces from the Sylvania formation a chemical brine with specific gravity of 1.28. At a depth of 2,400 feet, the pump they were using just didn't stand up. *But trouble ended when they installed a Reda pump equipped with a "K" Monel shaft and Ni-Resist diffusers.*

Then consider the story of this well in Louisiana. It had *plenty* of oil below the surface—but would only make gas on a ⅛" surface choke with 3,000 pounds pressure. Freezing of surface flow lines and connections was frequent. The allowable couldn't be produced.

After the operator installed an Otis Removable Bottom Hole Regulator made of "K" Monel, surface pressure dropped to 1,350 psi. Freezing stopped. Gas-oil ratio was cut to a point where almost no oil was wasted. The regulator stayed in the tube 57 months, produced 869,839 barrels before it was pulled for inspection. *It was found in first-class condition.*

Of course, corrosion resistance is only one quality that contributes to the dependability of equipment like this. Extra strength, hardness, toughness or resistance to wear and abrasion may also be vital. *In high-Nickel alloys, you get the combination of properties you need.* Through years of use in the toughest areas of the mid-continent district, Monel and "K" Monel have proved especially well adapted to combat harsh conditions.

Monel, in addition to being rustproof and highly resistant to sour crudes, withstands the cutting action of high-pressure gas, provides unusually good resistance to erosion and abrasion by entrained solids. **"K" Monel** brings you those same characteristics *plus* extra strength and hardness. It is non-magnetic; by heat treatment its tensile strength can be developed to 140-170,000 psi, its hardness to 265-320 Brinell.

Both Monel and "K" Monel are used for parts subject to alternating stresses in the presence of corrosives. Their retention of good fatigue strength is particularly evident in extended equipment life.

The full story of how you can put these and other INCO Nickel Alloys to work for you is contained in our new, illustrated booklet, *Controlling Corrosion in Petroleum Production Equipment.* It brings you typical performance and service stories of Nickel Alloys in a variety of corrosive uses. It discusses the important factors in reducing maintenance and replacement costs. There are sections dealing with exploration and drilling, pumping, and gas control.

The booklet tells, too, how you can get free technical advice on the selection of materials for severe service, and contains a listing of valuable Technical Bulletins that are available to you on request. Write for your copy—*now*. We'll get it into the next outgoing mail. *Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

EMBLEM OF SERVICE
INCO
TRADE MARK

MONEL..."K" MONEL...

Your partners in PROGRESS

Published every Thursday by The Petroleum Publishing Co., 211 S. Cheyenne, Tulsa, Okla.

P. C. LAUINGER
President

S. H. ROURKE
Business Manager

HANSON B. PIGMAN
Circulation Manager

ADVERTISING
MITCHELL TUCKER
Manager

Houston Office
Sterling Building, Phone Charter 4-4626
WAYNE RIVES
Vice President, Gulf Coast Sales

New York Office
415 Lexington Ave., Phone Murray Hill 2-4731
CHARLES A. WARDLEY
Eastern Manager
EDWARD C. PAGE
Representative

Chicago Office
105 West Madison, Phone Central 6-2537
C. R. FARMER
Manager
E. S. KLAPPENBACH
Representative

Pittsburgh Office
429 Fourth Ave., Phone Atlantic 4835
ALFRED M. JONES
Representative

Tulsa Office
211 S. Cheyenne, Phone 3-6291
JOHN D. REILLY
Representative
J. PARKER HOLLAND
Production Manager

Los Angeles Office
630 S. Grand Ave., Phone Vandike 0722
DONALD O. HANSON
Manager

England Office
32, The Avenue, Beckenham, Kent
A. J. CHAMBERS
Representative

Member
Audit Bureau of Circulations
Associated Business Papers

JOURNALLY Speaking

Funny Business

WE'LL bet you never expected to see anything of this nature in the serious-minded Oil and Gas Journal, but nevertheless it's in this issue, in black and white.

We refer to a new feature which appears a good many pages to the east of this space. We're not going to tell you what it is or where it is because we want you to look for it and experience the thrill of discovery. For this same reason we intend to spot it a different place in the book each week.

There is nothing at all novel about this feature, as it long has been used by virtually all of our contemporaries — with the notable exception of the New York Times. It's just new with us.

Confidentially, it took the staff a long time to make up its collective mind to print anything like this, but we finally decided that a little levity has a place even in our pages. We hope you like it.

Revolutionary Proposal

A SUGGESTION that would rock the very foundations of bureaucracy was made by Scott Hughes, chairman of the legal committee of the Independent Natural Gas Association of America, during the course of a hearing on changes in administrative rules proposed by the Federal Power Commission.

An educational program, he said, should be undertaken between the commission and the industry in order that both might get a clear understanding of exactly what it is the commission is seeking to do, and after that it might be possible to work out a mutually satisfactory solution.

Nothing so radical has been suggested in many years. If a government agency knew exactly what it is seeking to do, and if the industry it regulates did likewise, and if both agreed, what would be the use of having so many sprawling bureaus, and who would take care of the army of unemployed bureaucrats? Also think what might happen to Mr. Hughes' fellow lawyers. From any angle this looks like a thoroughly subversive proposal.

Made in U.S.A.

THE petroleum industry is the most thoroughly American industry in the world, remarked one of the several hundred "Oil Progress Day" speakers, and come to think about it, that is true.

The oil industry germinated, flowered, and fruited entirely in the U.S.A., and its seeds have been transplanted around the world. No other industry can make this claim. Even such dominant industries as automobiles, aviation, electronics, and railroading had foreign parents and cousins, and they attained preeminence here partly by borrowing and improving imported ideas. Steel, textiles, ceramics, printing, predate Columbus.

Other countries had oil in the ground and still have, but they don't have oil industries worthy of the name except where they have transplanted the American variety of oil industry substantially without modification.

There would seem to be considerable food for thought in this.

Ulp . . . Beg Pardon

EDITORS aren't the only people on a publication who make mistakes, though their shortcomings are spread in print for all to see. To prove this, one of our operatives intercepted some correspondence from the Circulation Department. Seems they dunned a man for a subscription renewal and he sent back his canceled check proving he had paid in full a couple of months earlier. He was real nice about it, too, but we wondered what he would have done if his name had been spelled wrong in the mag.

Modern Testing Methods — and Better Cementing Jobs

● Recognizing the important part cement plays in successful completion and operation of oil wells, Lone Star Cements have always been tested intensively. Fullest use is made of modern apparatus such as the pressure-type consistometer, as an aid in simulating conditions encountered in the well. Painstaking laboratory research, coupled with continuing study of problems at the drilling rig, provide practical information of value to the oil man in selecting cement to fit the particular job.

LONE STAR CEMENT CORPORATION

Offices: DALLAS • HOUSTON • NEW ORLEANS • BOSTON
KANSAS CITY, MO. • BIRMINGHAM • JACKSON, MISS.
INDIANAPOLIS • ALBANY, N. Y. • BETHLEHEM, PA.
CHICAGO • NORFOLK • PHILADELPHIA • ST. LOUIS
WASHINGTON, D. C. • NEW YORK

SELECT CEMENT TO FIT THE JO

The OIL AND GAS JOURNAL

FOUNDED IN 1910 BY PATRICK C. BOYLE

VOL. 47, NO. 27 NOVEMBER 4, 1948

EDITORIAL STAFF

C. O. WILLSON
Editor

Kenneth B. Barnes ..... Engineering Editor
Henry D. Ralph ..... News Editor
George H. Weber ..... Refining Editor
415 Lexington Avenue, New York City
Paul Reed ..... Pipe Line Editor
W. L. Nelson ..... Technical Editor
Lynn M. Nichols ..... Associate Editor
Neil Williams ..... Associate Editor
Charles J. Deegan ..... Associate Editor
R. B. Tuttle ..... Associate Editor
C. Dudley Johnston ..... Staff Artist

DISTRICT EDITORS

Dahl M. Duff ...415 Lexington, New York City
John C. Casper .....211 S. Cheyenne, Tulsa
J. W. Clote .....211 S. Cheyenne, Tulsa
Herndon David ..650 S. Grand Ave., Los Angeles
Carl F. Hoot .....Mercantile Bank Bldg., Dallas
Victor Lauriston 35 Stanley Ave., Chatham, Ont.
Bertram F. Linz ...621 Albee Bldg., Washington
Leigh S. McCaslin .....Sterling Bldg., Houston
Dan B. Miller .....211 S. Cheyenne, Tulsa
O. C. Pressprich ..... News Bldg., Saginaw
D. H. Stormont ..Mercantile Bank Bldg., Dallas

EDITORIAL ASSISTANTS

Polly DeArmond ..... 211 S. Cheyenne, Tulsa
Essie Mae Abbott .....Sterling Bldg., Houston

CORRESPONDENTS AT

Denver, Colo. Calgary, Alta.
Pittsburgh, Pa. Ashland, Ky.
Columbus, Ohio Oil City, Pa.

Subscription rate to the petroleum industry, United States and foreign, 1 year, $3.00. Single copies, 20 cents. Back copies when over a year old, 50 cents. Note: Payments from outside the U.S.A. may be in the form of an international money order or check on a U.S.A. bank. Entered as second-class mail matter at Tulsa, Okla., under Act of March 3, 1879. Copyright 1948 by The Petroleum Publishing Co.

In This Issue

News

Crude Outlook and Public Relations Highlight A.P.I. Meeting .. 36
A.A.P.G. Group Hears Report on ERP and New California Fields 38
Texas A. & M. Instrument Course Deals with Oil-Industry Uses.. 40
I.P.A.A. President Says Higher Crude Prices Benefit Defense.... 41
Taxes Are Chief Concern of Texas Royalty Owners 41
Report Shows How Europe Uses Marshall-Plan Funds for Oil 42
U. K. Refining Program Will Yield 400,000 Bbl. Daily 43
Sinclair Gets Protection for Ethiopian Drilling 43
Gas Pressure Displaces Pumps for Gathering Jusepin Crude 44
Accident and Fatality Rates Show First Postwar Decline 46
Trunkline Still Seeks FPC Authority for New Line 46
NPC Committee Named on Manpower Requirements 48
Michigan Wildcat Has Makings of New Field 48
Flare-Gas Waste Reduced, Operators Tell Texas Commission 49
OIT Allots 103,000 Tons of Pipe, Tapline Application Delayed.... 50
Quick Stop to "Steal" of Tidelands Demanded 50

Engineering - Operating

Sulfur in Petroleum 58
The Story of the Composition of Petroleum..... 60
A Map of the Petroleum World..... 61
Determination of Cycling Efficiencies in Cotton Valley Reservoir 63
Lion Oil Catalytically Processes Sour Gas Oil..... 69
Refinery Capacity to Total 6.4 Million Barrels by Early 1949..... 75
Progress in Metals..... 95
Lavaca Offshore Gas Pipe Line Laid on Texas Coast..... 96
New Liner-Setting Method Used in World's Deepest Producer... 103
Journal-Guide to Active Fields—Arch Field, Texas..... 107
Engineering Fundamentals—GOR as Criterion of Reservoir Performance 109
Cost-imating—Construction Steel 111
Oil and Gas Equipment Digest..... 113

Exploration - Development

Utah Gets a Third Oil Strike Down in SE Corner..... 133
Highlights of Week's Developments..... 133
Reports by Areas Start on Page..... 134
Weekly Well-Completion Record..... 150
Daily Average Production for Week..... 151

Departments

Journally Speaking 31
Editorial 35
This Week 39
International News 42
Watching Washington 47
Personals 53
Deaths in the Industry 57
Refining News..... 119
Pipe-Line News..... 122
Natural-Gas News..... 126
Natural-Gasoline News..... 126
Drilling Contractors..... 129
Statistics and Trends..... 150
Market Summary 152
Equipment Men in News.... 153
Classified Advertising..... 155
Calendar of Events..... 160
Advertisers' Index 160

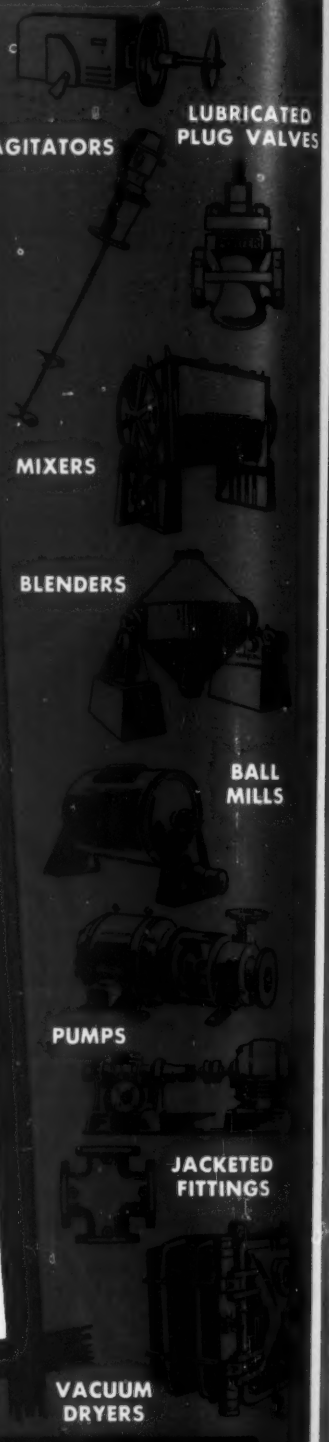
PORTER

Better-Built PROCESS EQUIPMENT

ENGINEERED
for Better Performance
DESIGNED
for Minimum Maintenance
BUILT
for Longer Life

These are the PLUS VALUES that make PORTER EQUIPMENT the most *Economical Buy*

PORTER
Better Built
Equipment
Established 1866



H. K. PORTER COMPANY, Inc.
PITTSBURGH 22, PENNSYLVANIA
District Offices in Principal Cities

THE OIL AND GAS JOURNAL

Remedy and Disease

IN the confusion that has resulted from the Supreme Court ruling outlawing multiple-basing-point pricing in the cement industry, and a previous finding involving the steel industry, we have another example of what happens when Government, through one of its administrative agencies, arbitrarily establishes new rules for the conduct of business without any clear conception of the issues involved.

We know of no one who presumes to have the answers for all the legal and administrative questions that have been raised as to the application of the highest court's findings. Nor has a clear analysis come from the explanations of the Federal Trade Commission, the responsible agency, which has been pursuing the price bear for some time, and now that it has it by the tail does not appear to know how to let loose.

The most encouraging development is that the obvious dangers inherent in what has already been done are so apparent they have precipitated an investigation by the Senate Trade Policies Committee which may result in needed legislation pertaining to this and allied problems.

Of direct concern is the possible direct application of the rulings in the refining and distribution of oil products. Some companies, construing the decision as applying to their operations, have changed their marketing practices to include delivered prices on their products.

There are no secrets as to how this industry carries on its merchandising. Various investigators, including the FTC, in recent years have made detailed studies from the fields and refineries through wholesale and retail markets to the consumers. There have been no sustained charges that prices were excessive nor have there been findings that competition does not exist.

Basing-point pricing has always been an integral part of the oil industry's growth. In the beginning, transportation of products was largely by rail and the railroads are still the largest haulers, with many refiners entirely dependent on them for the movement of their plant output. In recent years pipe lines, inland waterways, and trucks have greatly increased in importance in the shipping of products. Despite statements to the contrary, consumers have benefited from these cheaper means of transportation.

In practice this basing-point method has fostered, not destroyed, competition. It has made possible a virile, independent refining industry which in turn has strengthened the position of all other independent and small-scale operations in this industry. To outlaw it would mean the ending of these operations and tend to place all divisions of the oil industry in fewer hands.

In a business as ramified as the oil industry there are literally thousands of angles to be considered in changing a pricing practice, with no two operations affected in the same manner. This is a clear case in which the proposed remedy is worse than any disease that may exist.

Crude Outlook, Government and Public Relations Highlight A.P.I. Meeting

THE relations between the oil industry and Congress and the public, and long-range looks at current trends in petroleum, will be the major themes of the general sessions of the twenty-eighth annual meeting of the American Petroleum Institute in Chicago, November 8-11.

The three general sessions, Wednesday afternoon and evening and Thursday morning, will follow a heavy schedule of group sessions by the various A.P.I. divisions. More than 125 committees and subcommittees have scheduled meetings during the convention, some starting as early as November 4.

This gathering of upwards of 5,000 oil men will also be the occasion for luncheons, dinners, and meetings of numerous clubs and groups within the industry. Registration will be in the Stevens Hotel, and meetings will be divided between the Stevens and the Palmer House.

The annual address of the Institute's president, William R. Boyd, Jr., will open the general sessions at 2:30 p.m., Wednesday, November 10. He will be followed by Dr. Robert E. Wilson, chairman of the board of Standard Oil Co. (Ind.), speaking on "How the Oil Supply Problem Was Licked." The report of the board of councilors and election of directors will also take place at this session.

Kettering Medalist Speaker

The feature of this session will be the presentation of a gold medal for distinguished achievement to Charles F. Kettering, recently retired as vice president and director of research of General Motors Corp. Doctor Kettering will reply with an address which is anticipated with interest because of his many contributions to the improvement of automotive engines and fuels.

Broad aspects of public relations will be the subject for the Wednesday evening session. "Congress Looks at the Petroleum Industry" is the topic of the opening speaker, Sen. George W. Malone of Nevada, chairman of the Senate's subcommittee on natural resources economics. The other side of the coin will be examined by Frank M. Porter, president of Fain-Porter Drilling Co., Oklahoma City, and president of the Mid-Continent Oil and Gas Association, discussing "The Petroleum Industry Looks at Congress." This session will close with an impromptu discussion by a panel composed of spokesmen for the petroleum industry and a group of prominent radio commentators.

One of the highlights of the convention will be the report of the A.P.I. committee on long-term availability of crude oil, which will open the Thursday morning session. This report, for the first time, will forecast the oil-production potential on a per-barrel basis, and will set forth specific figures embracing the next 10 years. L. F. McCollum, president of Continental Oil Co., Ponca City, Okla., and chairman of this committee, will present the report and discuss it in some detail, analyzing its relationship to the every-day user of petroleum products.

This will be followed by Robert G. Dunlop, president of Sun Oil Co., Philadelphia, speaking on "Three Peas in a Pod: Prices, Profits, Productivity in Petroleum." The final address of the convention will be "Government for the People," by Max W. Ball, retiring director of the Oil and Gas Division of the Department of the Interior.

Group Sessions Diverse

Group sessions have been scheduled during the first 3 days of the convention by the A.P.I.'s divisions of refining, transportation, marketing, production, fire prevention, and public relations, and there will also be sessions on lubrication, motor-oil classification, accident prevention, and highways.

Eugene Ayers, of Gulf Research & Development Co., Pittsburgh, will deliver a comprehensive paper on the "Major Sources of Energy" before the division of refining on Tuesday. This report will discuss all known sources of energy available to man, including atomic energy.

The division of production, in its Tuesday meeting, will have key addresses by E. G. Gaylord, of California Research Corp., San Francisco, whose subject will be the "Role of Research in the Production of Oil"; R. H. Hargrove, of Texas Eastern Transmission Corp., Shreveport, on the "Importance of Natural Gas in the National Economy of the United States," and John R. McNulty, of Ohio Oil Co., Casper, Wyo., on "Do You Recognize Your Employes as People?"

While Monday's sessions generally will be devoted to technical symposiums, the division of marketing is sponsoring three interesting addresses. They will be: "The Need for the Individual Businessman in the National Economy" by Theodore O. Yntema, research director for the Committee for Economic Development, Chicago; "Business Aids for Dealers and Jobbers," Charles H. Wible, of Edwin K. Williams Co., Chicago, and "The Current Supply Position," John M. Boatwright, of Standard Oil Co. (Ind.), Chicago.

Following is a condensed program of these group sessions:

SATURDAY, NOVEMBER 6, 1948

Symposia on Motor-Oil Classifications.—Discussion topics (a discussion leader will be chosen for each topic): "History of Classification Systems," "Significance of Classification vs. Specifications," "Maximum Viscosity Requirements," "Analysis of Present and Proposed Systems," "The Number of Viscosity Grades Desired from the Marketing Standpoint: (a) For Service-Station Distribution, (b) For Industrial Distribution."

MONDAY, NOVEMBER 8, 1948
Division of Refining

Symposium on Rapid Methods of Analysis.—"Quantitative Determination of Sulfur in Hydrocarbons by X-ray Absorption," "Rapid Method of Stack-Gas Analysis for Total Sulfur and Sulfur Dioxide," "Carbon-Dioxide Scrubbing Method for Determining Stripper Efficiency," "Continuous Determination of Carbon Monoxide and Carbon Dioxide in Pilot-Plant and Refinery Operations Using an Infrared Gas Analyzer," "The Determination of Dissolved Oxygen (in Hydrocarbon Oils)," "Use of the Viscorator for Plant Viscosity Control," "Determination of Inhibitors in Gasoline," "Modified Burners for Elemental Analysis by Lamp Combustion and Their Application to Special Problems," "The Determination of Inorganic Chlorides in Crude Oils by Direct Electrometric Titration," "The Determination of Nitrogen in Volatile Organic Compounds by a Semimicro-Dumas Method," "The Determination of Water in Gaseous Propane by Means of Infrared Spectroscopy," "Continuous Infrared Determination of Ethylene Oxide in Pilot Plant Facilitates Process Development," "Determination of Naphthalene, Methyl Naphthalenes, and Total Naphthalenes in Admixture with Other Hydrocarbons by Ultraviolet Absorption," "Applications of X-ray Diffraction Methods to Rapid Analyses in the Petroleum Industry," "Determination of Total Olefin and Total Aromatics in Hydrocarbon Mixtures by Raman Spectrometry."

Division of Transportation
10:45 A.M.

Pipe-Line Symposium.—"Suspended Material Carried in Crude-Oil Streams," J. E. Green, A. H. Hall, and L. R. Luttrell, Shell Pipe Line Corp., Houston. "Crude-Oil Metering," J. E. White, Jr., Stanolind Pipe Line Co., Tulsa, Okla. "Pipe Corrosion by Sour Crude Oil," Lyle R. Sheppard, Shell Pipe Line Corp., Houston, Texas.

Division of Marketing
2:00 P.M.

"The Need for the Individual Businessman in the National Economy," "Business Aids for Dealers and Jobbers," "The Current Supply Position," "Recognize the Service-Station Bookkeeper," Chas. H. Wible.

SEN. GEORGE W. MALONE *FRANK M. PORTER* *L. F. McCOLLUM* *ROBERT G. DUNLOP*

Edwin K. Williams Co., Chicago. "Production Committee on the Standardization of Oil-Country Tubular Goods: Field Test on Rejected Drill Pipe," A. W. Thompson, Thompson-Carr, Inc., Houston, and H. G. Texter, Spang-Chalfant Division, National Supply Co., Tulsa.

Division of Transportation
2:00 P.M.

"Mechanical Aspects of Pipe-Line Coatings," L. F. Scherer, The Texas Pipe Line Co., Houston, Texas; and O. C. Mudd, Shell Pipe Line Corp., Houston, Texas. "Lease-Tank Settings, Connections, and Operation," J. C. Stirling, Stanolind Pipe Line Co., Tulsa, Okla. "Environmental pH as a Factor in Control of Anaerobic Bacterial Corrosion," J. B. Hunter, H. F. McConomy, and R. F. Weston, The Atlantic Refining Co., Philadelphia, Pa. "A Graphic Method for Dispatching Operations on a Products Pipe-Line System," Allen Baxter, Keystone Pipe Line Co., Philadelphia, Pa. "Internal Corrosion of Crude-Oil Tankers," R. A. Brannon, Humble Pipe Line Co., Houston.

Accident Prevention
8:00 P.M.

Safe Handling of Petroleum Products.—"In the Home and on the Farm," F. R. McLean, Socony-Vacuum Oil Co., Inc., Detroit, Mich. "Avoiding Contamination," J. W. Sinclair, Union Oil Co. of California, Los Angeles, Calif. "Gas-Freeing Tanks—Air Movers vs. Steaming," R. W. Black, Esso Standard Oil Co., Elizabeth, N. J. "Four Years of Accident-Free Hydrofluoric-Acid Operation," T. E. Flowers, Standard Oil Co. of California, Richmond, Calif.

TUESDAY, NOVEMBER 9, 1948
Division of Production
9:30 A.M.

"Improvements in Cementing Practices and the Need for Uniform Cementing Regulations," George E. Cannon, Humble Oil & Refining Co., Houston, Texas. "Factors to Be Considered in Obtaining Proper Cementing of Casing," George C. Howard and J. B. Clark, Stanolind Oil & Gas Co., Tulsa, Okla. "Factors Used in the Allocation of Production Among Pools and Within Pools," Edgar Kraus, The Atlantic Refining Co., Dallas, Texas.

Division of Transportation
9:30 A.M.

"Regulation of the Movement of Oil by Water," Adm. Joseph F. Farley, Commandant, U. S. Coast Guard, Washington, D. C. "The Railroads and the Petroleum Industry," William T. Faricy, president, Association of American Railroads, Washington, D. C. "Current Critical Problem in Highway Transport," Prof. John S. Worley, University of Michigan, Ann Arbor, Mich.

Division of Refining
10:00 A.M.

"Major Sources of Energy," Eugene Ayres, Gulf Research & Development Co., Pittsburgh, Pa. "Report of Division's Nominating Committee.

Division of Production
2:00 P.M.

"Role of Research in the Production of Oil," E. G. Gaylord, California Research Corp., San Francisco, Calif. "Importance of Natural Gas in the National Economy of the United States," R. H. Hargrove, Texas Eastern Transmission Corp., Shreveport, La. "Do You Recognize Your Employes as People?" John R. McNulty, The Ohio Oil Co., Casper, Wyo.

Division of Transportation
2:00 P.M.

Address.—Hon. Clyde B. Aitchison, member, Interstate Commerce Commission, Washington, D. C. "Our Study of Federal Transport Law," George W. Whittaker, vice chairman, Legal Advisory Group, Transportation Association of America, New York, N. Y. "The Allocation of Steel for Petroleum Transportation," Clifford A. Hahn, general industrial negotiator, Office of Industry Cooperation, U. S. Department of Commerce, Washington, D. C.

A.P.I.C. Highway Session
2:00 P.M.

Planning and Paying for Highways—a Forum.—Address: Alexander Fraser, president, Shell Union Oil Corp., and chairman of the board, Automotive Safety Foundation, New York, N. Y. Address: Speaker to be announced. Address: M. S. Aldrich, chairman, West Virginia Highway Users Conference, Charleston, W. Va.

Fire Protection
8:00 P.M.

"Municipal Fire Regulations of Oil Operations," G. F. Prussing, Western Oil and Gas Association, Los Angeles, Calif. "Development and Operation of N.F.P.A. Standards," R. S. Moulton, National Fire Protection Association, Boston, Mass. "Accident and Fire Press Relations," J. L. Risinger, Socony-Vacuum Oil Co., Inc., New York, N. Y. "Value of Training Personnel in Fire-Fighting Practices," J. E. Hill, Union Oil Co. of California, Los Angeles, Calif.

Public-Relations Session
8:00 P.M.

"Public Relations in the World Today," Claude Robinson, Opinion Research Corp., Princeton, N. J. "The Operating Technique of Public Relations," H. H. Anderson, Shell Pipe Line Corp., Houston, Tex.

WEDNESDAY, NOVEMBER 10, 1948
Division of Production
9:30 A.M.

Offshore Drilling.—"Exploration," R. D. Wyckoff, Gulf Research and Development Co., Pittsburgh, Pa. "Regulations Covering Drilling Activities in Coastal Waters," R. G. Watts, Magnolia Petroleum Co., Dallas, Tex. "Offshore Drilling and Development," Mercer H. Parks, Humble Oil & Refining Co., Houston, Tex.; and J. C. Posgate, Humble Oil & Refining Co., New Orleans, La.

Lubrication Session
9:30 A.M.

"Lubricant Requirements for the Automobile Engine of the Future," A. T. Colwell, Thompson Products, Inc., Cleveland, Ohio. Prepared discussion by: H. C. Mougey, technical director of research laboratories division, General Motors Corp., Detroit, Mich.; and W. M. Holaday, director of Socony-Vacuum Laboratories, Socony-Vacuum Oil Co., Inc., New York, N. Y. "Additives for Lubricants—Their Advantages and Disadvantages," Bruce Boehm, Enjay Co., Inc., New York, N. Y. Prepared discussion by: A. O. Willey, The Lubrizol Corp., Cleveland, Ohio; and R. E. Jeffrey, Jr., Shell Oil Co., Inc., San Francisco, Calif. "Let's Be More Consistent!" Henry E. Abt, Brand Names Foundation, Inc., New York, N. Y.

GENERAL SESSIONS
2:30 P.M.

President's address: William R. Boyd, Jr., president, American Petroleum Institute, New York, N. Y. Address: "How the Oil Problem Was Licked," Robert E. Wilson, chairman of the board, Standard Oil Co. (Indiana), Chicago, Ill. "Presentation of Gold Medal for Distinguished Achievement." Address: Charles F. Kettering, Research Laboratories Division, General Motors Corp., Detroit, Mich.

8:00 P.M.

"Congress Looks at the Petroleum Industry," Hon. George W. Malone, U. S. Senator; chairman, National Resources Economics Subcommittee of the Senate Committee on Interior and Insular Affairs, Reno, Nev. "The Petroleum Industry Looks at Congress," Frank M. Porter, president, Fain-Porter Drilling Co.; president, Mid-Continent Oil and Gas Association, Oklahoma City, Okla. Panel Discussion: Interview of Members of the Petroleum Industry by Seven Well-Known Radio Broadcasters.

THURSDAY, NOVEMBER 11, 1948
General Session
9:30 A.M.

"Long-Term Availability of Crude-Oil Supply," L. F. McCollum, president, Continental Oil Co.; chairman, Subcommittee on Long-Term Availability of the National Oil Policy Committee of the American Petroleum Institute, Ponca City, Okla. "Three Feas in a Pod: Prices, Profits, Productivity in Petroleum," Robert G. Dunlop, president, Sun Oil Co., Philadelphia, Pa. Address: "Government for the People," Max W. Ball, director, Oil and Gas Division, Washington, D. C.

A.A.P.G. Group Hears Reports on ERP and New California Fields

by Herndon David

PASADENA.—Success of the Marshall plan will depend in large measure on Middle East oil to revitalize Europe's industry, it was declared by T. L. Lenzen, general manager of Eastern Hemisphere operations for Standard Oil Co. of California, in speaking before the twenty-fifth annual meeting of the Pacific Section of the American Association of Petroleum Geologists here October 28-29.

Lenzen emphasized that to make Middle East oil available it will be necessary not only to continue the development of the great Middle East reserves but also to provide for the transportation of the crude oil and the construction of new refinery capacity in Europe and the Mediterranean.

Lenzen declared that one of the keys to open the oil wealth of the Middle East is the 1,070-mile Trans-Arabian pipe line, which will deliver crude to the Mediterranean. Construction progress has been retarded by the suspension of steel export permits, but he expected that shipments of pipe will soon be resumed and the project in operation by 1950. Already 140 miles of the 30-in. pipe have been laid and another 5½ miles are being laid every week.

Billion Available to Middle East

He revealed that production in Saudi Arabia, the most rapidly expanding oil-producing country in the Middle East, is now running about 500,000 bbl. of crude daily, better than 50 per cent of total California production.

Lenzen stated expenditures of the various oil companies operating in the Middle East will total about $1,500,000,000 during the next 5 years. Actually, he said, a billion dollars will be available as foreign exchange to the relatively undeveloped Middle East countries.

He also reviewed the political and economic conditions in the various countries of western Europe and Asia in which he has recently traveled. He said that while there is some evidence of impatience on the part of those who had expected immediate results, Marshall-plan aid already is being felt in the recovery of some European countries.

Concluding, Lenzen declared, "I wish to emphasize that, unless Eastern Hemisphere oil is developed, Europe will be starved for oil and her recovery thereby retarded, and we in the United States shall be pressed to meet our growing domestic petroleum requirements."

An outstanding feature of the program for the meeting was its timeliness. Included in the 18 technical papers presented were discussions of practically every recent discovery in California. Harry A. Campbell of Jergins Oil Co. read a paper on the San Ardo oil field, while J. Q. Anderson of Barnsdall Oil Co. covered the Guijarrel Hills discovery, and Mason Hill of Richfield Oil Corp. described the Russell Ranch field in the Cuyama Valley.

New Fields Discussed

The discussions of San Ardo and Russell Ranch fields, together with a description of recent developments in the Salinas Valley by R. R. Thorup, consultant, were of particular interest to attending geologists. The entire area lying between the Cuyama Valley on the south and San Ardo on the north is a long trend of sedimentary basins and is practically unexplored. The recent discoveries at San Ardo and in the Cuyama Valley have focused considerable attention on this area and it is now believed to be one of the best future oil prospects in California. Since relatively little is known of the geology of the area, the papers were extremely timely and valuable.

Other technical papers presented during the 2-day meeting included: "Geology of the Santa Cruz Island," by William Rand of Union Oil Co.; "Salinas Valley Microfauna," by R. Stanley Beck, consultant; "West Area of the Tejon Ranch Oil Field," by L. C. Forrest, General Petroleum Corp.; "Geology of the Hungry Valley Area, South of Gorman," by John Crowell of the University of California at Los Angeles; "Airborne Magnetometer Profile Across Cuyama Valley," by Wayne Hoylman, Fairchild Aerial Surveys, Inc.; "The Oceanic Sand," by J. H. McMasters, Honolulu Oil Corp.; "The West Mountain Oil Field," by Leo H. Moir, Jr., Wilshire Oil Co.; "Major Elements of Utah Geology and Current Exploration Program," by J. S. Williams, Utah State Agricultural College; "Possibilities of New Stratigraphic Trap Areas in the Rocky Mountain Region," by H. C. Rea, consultant; "Recent Developments in Canada," by L. M. Clark, Barnsdall Oil Co.; "History of the Continental Shelf of the Gulf of Mexico," by Paul Weaver, national president, A.A.P.G.; "Jasmine Oil Field," by Robert W. Casey, Pacific Oil & Gas Development Corp.; and "Tertiary Geology and Principal Oil Fields of Burma," by H. R. Tainsh, Burmah Oil Co.

At a general election carried on during the convention, the following officers were elected to head the Pacific Coast Section of the A.A.P.G. during the coming year: president, Cliff Johnson, Richfield Oil Corp.; vice president, John Kilkenney, Chanslor - Canfield - Midway Oil Co.; and secretary-treasurer, Harold Rader, Standard Oil Co. of California.

Held in conjunction with the A.A.P.G. meeting were the annual fall meetings of the Pacific Coast Section of the Society of Exploration Geophysicists and the Society of Economic Paleontologists and Mineralogists.

The S.E.G., which was organized into an active chapter last year, held one technical session during which seven papers were read. These papers were: "Correlation of Gravity Anomalies With Seismic and Geological Data in California," by P. F. Clement, Western Gulf Oil Co.; "Review of Some Wartime Studies of Explosive Phenomena," by R. A. Peterson, United Geophysical Co., Inc.; "A New System of Seismic Exploration," by Thomas C. Poulter, Stanford Research Institute; "The Oscillatory Character of Seismic Pulses," by C. Hewitt Dix, California Institute of Technology; "Phillipine Exploration Problems," by J. L. Soske, Geophysical Engineering Corp.; "Comparative Interpretation of Airborne and Surface Magnetometer Data," by Wayne Hoylman, Fairchild Aerial Surveys; and "The Blast Damage Claim Racket," by H. M. Engle, structural engineer.

S.E.G. Announces Officers

Officers of the S.E.G. for the coming year, although elected previously, were not announced until the convention. These men are: president, Robert Dunlap, Geophysical Service, Inc.; vice president for the Northern District, Joe Waterman, Shell Oil Co, Inc.; vice president for the Southern District, Hewitt Dix, California Institute of Technology; and secretary-treasurer, Bill Cortright, Tide Water Associated Oil Co.

The S. E. P. M. meeting consisted of the annual dinner at the Pasadena Athletic Club at which one paper was presented. This was "The Miocene-Pliocene Boundary in the Los Angeles Basin From the Viewpoint of the Microstratigrapher," by Stanley G. Wissler and F. D. Crawford, both of the Union Oil Co.

Selected as new officers for the Pacific Coast Section of the S.E.P.M. were: president, Aden Hugher, Union Oil Co., and secretary-treasurer, Urshal Armstrong, Shell Oil Co., Inc.

this week

MEETINGS—Oil men head toward Chicago for the industry's biggest conclave, the annual A.P.I. meeting. . . . Program highlighted by discussions of long-range trends in supplies, profits, relations with Government and public. . . . Scores of important technical papers scheduled. . . . ¶California A.A.P.G. discusses promising new wildcatting territory. . . . ¶Texas A. & M. short course explains proper use of instrumentation. . . . ¶National Safety Council reports oil-industry accident rate declining. . . .

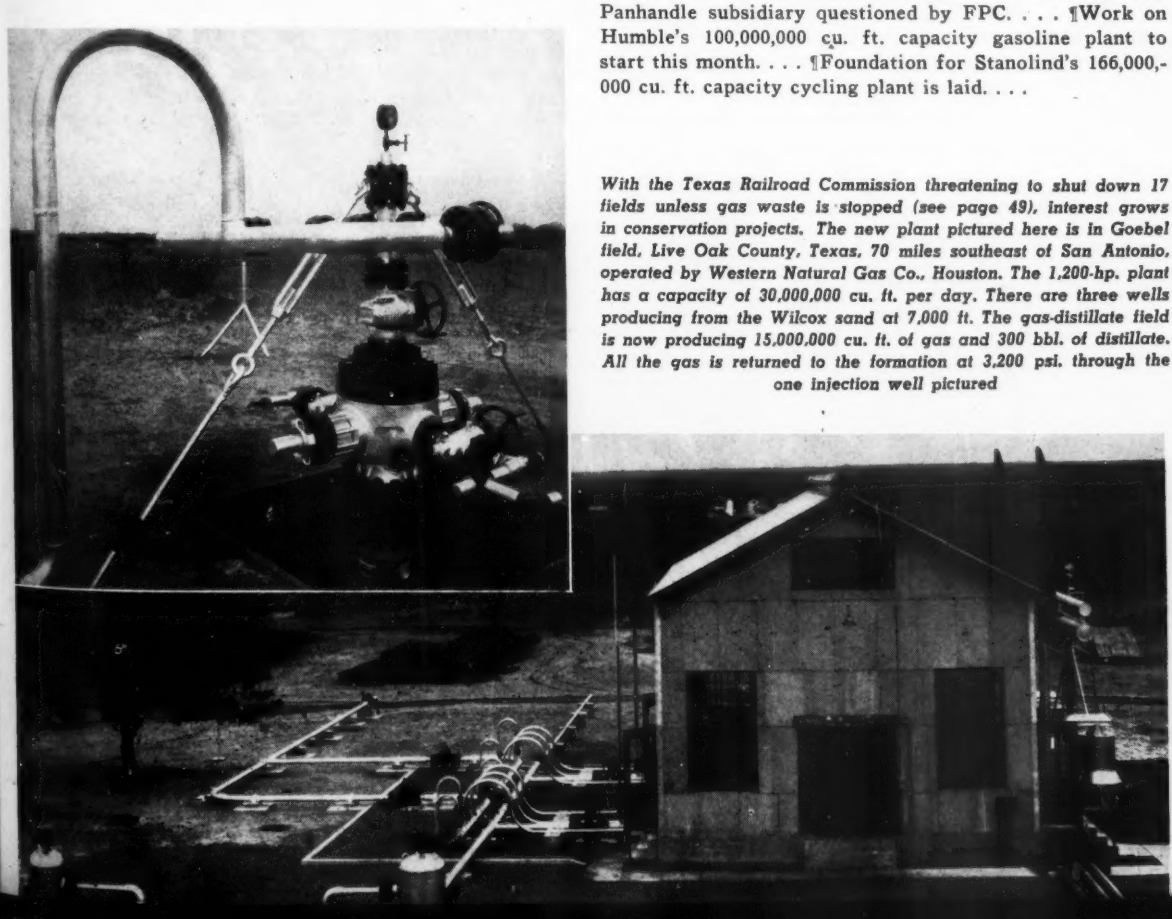
PRODUCTION—Texas operators list plans to utilize flare gas in answer to Railroad Commission challenge on waste. . . . ¶I.P.A.A. president says higher crude price necessary to increase reserves and productive capacity for national defense. . . . ¶Government urged to take immediate steps to stop development of offshore oil. . . .

GOVERNMENT—Pipe allocated for export includes none for Trans-Arabian line. . . . ¶Committee appointed to check oil industry's war manpower needs. . . . ¶Yield of oil taxes running so high there appears little chance they will be dropped. . . . ¶Justice Department closely watching oil-industry voluntary allocations plan. . . . No complaints received yet. . . .

TRENDS—U. S. crude-oil production passes the 5,600,000-bbl. mark for first time. . . . New record high of 5,603,925 bbl. for week ended October 30 is fourth week of consecutive records and twenty-fourth all-time high this year. . . . ¶Oklahoma and Texas show new production records for year. . . . ¶Wildcat completions of 154 for week ended October 30 approach record high of August 28 of 156. . . . ¶Stocks of four major products are up 2,912,000 bbl. over last week. . . . Up 54,400,000 bbl. over last year. . . . Smallest percentage gain recorded in kerosine stocks up 18.8 per cent over previous year. . . . ¶Heating-oil season activity nears. . . . Market reports reveal kerosine, No. 1, and range oil closely held. . . . Possible "pinch" this winter seen in these products. . . . Kerosine percentage yields for first 8 months in 1948 were below all corresponding months in 1947 except in first quarter. . . .

INTERNATIONAL—Through Marshall-plan aid, western European countries have increased imports of crude and refined products. . . . U. S. crude exports to western Europe cut 40 per cent in first half of 1948. . . . ¶U.K.'s refinery expansion program will increase daily output to 400,000 bbl. . . . ¶Creole Petroleum Corp. uses high-pressure well-head gas to push crude oil to main pipe lines. . . .

NATURAL GAS—FPC asks for comments on three rules proposed to clarify applications for construction. . . . ¶Winter emergency rules for allocation of gas to customers of Panhandle made effective. . . . ¶Sale of gas by Panhandle subsidiary questioned by FPC. . . . ¶Work on Humble's 100,000,000 cu. ft. capacity gasoline plant to start this month. . . . ¶Foundation for Stanolind's 166,000,000 cu. ft. capacity cycling plant is laid. . . .



With the Texas Railroad Commission threatening to shut down 17 fields unless gas waste is stopped (see page 49), interest grows in conservation projects. The new plant pictured here is in Goebel field, Live Oak County, Texas, 70 miles southeast of San Antonio, operated by Western Natural Gas Co., Houston. The 1,200-hp. plant has a capacity of 30,000,000 cu. ft. per day. There are three wells producing from the Wilcox sand at 7,000 ft. The gas-distillate field is now producing 15,000,000 cu. ft. of gas and 300 bbl. of distillate. All the gas is returned to the formation at 3,200 psi. through the one injection well pictured

Texas A. & M. Instrument Course Deals With Oil-Industry Uses

by Leigh S. McCaslin, Jr.

MANY refinery, natural gasoline, and cycling plant operators do not consider instruments in the proper economic light, in the opinion of A. O. Beckman, president of National Technical Laboratories, South Pasadena, Calif.

Beckman expressed this thought in his paper on "Analytical Instrument Development," presented last week at the Texas A. & M. College short course on "Instrumentation for the Process Industries." It is common and proper practice, according to Beckman, to study the profit angle in the purchase of production equipment, but too often this practice is not applied to instruments. "Instruments are profit-making equipment," he further stated, "and should be considered on the same economic basis as any other type of production equipment."

Savings Illustrated

In illustrating his thoughts, Beckman drew on his personal experience with process instrumentation. One example concerned an installation where greater uniformity of flow and closer operation control provided by instruments made unnecessary a considerable investment in storage tanks. In another case, the purchase of a $200 pH meter made unnecessary the investment of $2,000 in pumps and filter for removing a sludge which formed when there was no pH control.

In enumerating the saving which can result from proper instrumentation, Beckman mentioned these factors: operation within closer limits; more efficient operation, improvement in quality of product; reduction of spoilage or rejected materials; lower labor costs; and safer operation because of the fact that instruments are on the job continuously.

The practical development of analytical instruments was discussed by Beckman in pursuing his main theme. This development was illustrated by the examples of electromagnetic spectra, absorption spectrophotometry, infrared analyzers, emission spectrophotometry, flame spectrophotometry.

Eight other papers were heard by the 300 engineers and technicans attending the 3-day instrumentation course. J. J. Grebe, director, physical research laboratory, Dow Chemical Co., Midland, Mich., emphasized in his paper (which was read to the meeting by R. C. King of Dow) that "the study of self-regulation is still an art that deserves to become a science with the help of the many students of process equipment design." Grebe expressed the hope that his discussion, "Self-Regulation and Automatic Control," would encourage progress in the endeavor to make self-regulation a science.

The Dow company speaker summarized his subject in this statement: "Because of the great importance of inherent self-regulating characteristics designed into processing equipment, it is essential to know more about it and recognize it in its various aspects so as to take advantage of it. This does not mean that self-regulation can generally be made to take the place of good automatic control instruments. On the contrary, the cost of this drooping characteristic required to buy self-regulation often amounts to enough to make it necessary to get by with the minimum of self-regulation. But between the instance where a hundred pounds of control equipment can save a thousand pounds of gasoline on an airplane and the case of the bubble-cap fractionator where the added pressure drop required to provide good distribution is ever so much more economical than thousands of control valves, there are many applications where much can be gained by the proper choice of methods and design."

Instrumentation of fractionating columns was covered in considerable detail by G. W. Wilson, senior chemical engineer, technical service division, Humble Oil & Refining Co., Baytown, Tex. He first classified the various control systems and then presented examples as found in Humble's Baytown refinery. The general types discussed by Wilson were: fixed system on material balance, fixed system on temperature control, variable system on material balance, and variable system on temperature control.

A few plants are under construction or on the drawing boards which will dehydrate gas ahead of the absorption units, according to J. Felton Furrh, The Chicago Corp., Corpus Christi, who spoke on "Natural Gas Dehydration." "The most significant change which has occurred in pipeline practice within the last few years is the transition from float-tank operation to closed-line operation" in the opinion of S. S. Smith, manager, products pipe-line department, Shell Oil Co., Inc., New York. Smith's paper on "Automatic Control in Pipe Lines" was presented by R. K. Schulze of his department.

In discussing "Management's View of Instrumentation," R. S. Crockett, plant superintendent, Neches Butane Products Co., Port Neches, Tex., stated that $2,000,000 of the expense of a $57,000,000 plant was attributable to instrumentation. Crockett also mentioned that a shortage of skilled personnel exists in the instrument field. R. D. Webb, head, instrument department, Carbide & Carbon Chemicals Corp., South Charleston, W. Va.,

Shown are seven of the authors appearing on the 3-day program of the Texas A. & M. College short course "Instrumentation for the Process Industries." Bottom row: V. P. Head, Fischer & Porter Co.; G. W. Wilson, Humble Oil & Refining Co.; R. K. Schulze, Shell Oil Co., Inc. (who presented a paper by S. S. Smith of Shell); and J. F. Furrh, The Chicago Corp. Top row: R. D. Webb, Carbide & Carbon Chemicals Corp.; R. N. Pond, Taylor Instrument Cos.; and R. C. King, Dow Chemical Co. (who presented a paper by J. J. Grebe of Dow)

in his talk, "New Adaptations of Old Instruments," covered unusual and unorthodox hook-ups using the valve stem position controller. He emphasized that the practice of using "trick hook-ups" is good and will be profitable if kept under control.

In his paper "Constant Head Meters," V. P. Head, director, fluids research, Fisher & Porter Co., Hatboro, Pa., covered in detail the construction, theory and use of this type meter. R. N. Pond, application engineer, Taylor Instrument Cos., Rochester, N. Y., presented a very interesting 3-hour demonstration to the group on the basic principles of automatic process control.

Speaker at the banquet held in conjunction with this third annual instrumentation short course was C. P. Thompson of Oklahoma A. & M. College, and toastmaster was Al Saenger, sales department, Humble Oil & Refining Co.

Chairman of the steering committee for this largest and most successful session of the short course was P. G. Murdoch of the chemical engineering department of Texas A. & M. Other members of the committee are: J. A. Parker, Shell Chemical Co., Houston; W. H. Fortney, Humble Oil & Refining Co., Baytown, Tex.; R. L. Mallory, Minneapolis-Honeywell Regulator Co., Houston; M. K. Anderson, Carbide & Carbon Chemicals Corp., Texas City; J. Dvoracek, Climax Engineering Co., Tulsa; G. L. Farrar, Texas A. & M. College; R. E. Hansen, Leeds & Northrup Co., Houston; Porter Hart, Dow Chemical Co., Freeport, Tex.; and L. W. Parten, Foxboro Co., Houston.

I.P.A.A. President Says Higher Crude Price Would Benefit National Defense

A HIGHER posted price for crude petroleum will tend to increase domestic reserves and thus strengthen our national defense, it is declared in a statement issued at Amarillo October 30 by Fred W. Shield, president of the Independent Petroleum Association of America. His statement follows:

FRED W. SHIELD

"In view of the serious international situation confronting the United States, there is nothing of more importance to our nation than its national defense. In the last two world wars the importance of an adequate supply of petroleum products was fully demonstrated and, of even more importance, it was found essential that we have the needed adequate supplies within the borders of the United States. The large proved reserves of crude petroleum and the excess productive capacity that was available within the borders of the United States at the beginning of World War II made it possible for our country to furnish approximately 83 per cent of the petroleum products used by our allies and ourselves in the winning of the war and it is generally recognized that had our domestic supplies been inadequate we probably would have lost the war.

"It has been historically proven that the discovery of new reserves and the development of increased productive capacity has a direct relationship to the drilling effort and that the drilling effort is directly related to the price of crude oil.

"Since the wartime restrictions on the price of crude oil were removed the price of crude oil has advanced through successive stages, resulting in increased drilling in the United States followed by increased reserves and production. In fact, in 1948, the total number of wells drilled in this country will be more than twice the number drilled in either 1942 or 1943. Our domestic production today is approximately 900,000 bbl. per day greater than the peak production during World War II. These accomplishments are definitely, in my opinion, the result of the increase in the price for crude oil. Had we not had these increases in price there would now be a severe shortage of domestic crude oil.

"The margin between supply and demand in the United States is so small that it is not a safe margin for our national defense. In fact, today we are temporarily a new importing nation. The increase in price posted by Phillips Petroleum Co., if made effective by all purchasing companies, will make available additional funds for increased exploratory and development effort which, in turn, will no doubt increase our domestic reserves and productive capacity and thus tend to strengthen our national defense. I believe that, in the interest of national security, the action by the Phillips Petroleum Co. and others in maintaining the increased posted price for Mid-Continent crude oil is sound and that they are to be commended for their action."

Taxes Are Chief Concern Of Texas Royalty Owners

HOUSTON.—The possibility of increased taxes is the most important legislative matter facing Texas oil men, E. I. Thompson, executive vice president of the Texas Independent Producers and Royalty Owners Association, told a district meeting of the organization here last week.

Increased taxes in Texas comparable to those voted by the Louisiana legislature last spring cost the oil industry in Texas an estimated $150,000,000 a year, Thompson said. The Texas legislature meets early in January, and proposals already have been advanced for a tax on natural resources, particularly natural gas, to support a rural-road program.

The meeting here for the Upper Gulf Coast area was one of a series being held by the association. It brought out considerable criticism of major oil companies for their failure to meet Phillips Petroleum Co.'s 35-cent crude advance.

Guy Warren, Corpus Christi, president of the association, cited the need of a higher crude price to encourage domestic exploration and development, and urged the group to cooperate with those companies offering the higher price for oil. Glenn H. McCarthy, Houston, said major companies are favoring foreign oil over increased domestic reserves and the higher price. "They want to produce this foreign oil while they have an opportunity, even though it means slowing up exploration in this country," McCarthy said.

Three Federal Oil Taxes Running Above 1947 Yield

WASHINGTON.—Treasury revenue from the three federal oil taxes topped the $55,000,000 mark in September to bring the total for the first 9 months of the year to $432,500,000, some $27,000,000 more than was collected in the same period in 1947, it is disclosed by the monthly report of the Bureau of Internal Revenue.

September collections included $45,807,269 from gasoline against $42,972,350 in September 1947; $8,475,551 from lubricating oils against $6,401,968; and $1,135,133 from pipe-line transportation against $1,497,405, the bureau announced.

For the 9-month period, gasoline returned $356,175,383 this year against $333,818,091 in 1947; lubricating oils, $62,389,225 against $58,746,798; and pipe-line transportation, $13,983,634 against $12,899,505.

International

WORLD-WIDE OIL DEVELOPMENTS

Report Shows How Europe Uses Marshall-Plan Funds for Oil

WASHINGTON.—Marshall Plan assistance enabled western European countries to increase their imports of crude oil and refined products from 123,000,000 bbl. in the first half of 1947 to 159,000,000 bbl. during the corresponding period this year, it is reported by Walter J. Levy, chief of the petroleum branch, in a review of the activities of the Economic Cooperation Administration.

Preliminary figures which do not include Marshall Plan countries for which a program has not been finally determined nor exports on which complete detail is lacking, Levy said, show that during the first 6 months of its operations, April through September, ECA financed dollar oil shipments of 58,188,000 bbl. valued at $203,075,000, and provided some $50,000,000 additional for tanker transportation expense, representing 40 to 45 per cent of the total oil import needs of the countries receiving ECA assistance.

The figures showed that 75 per cent of the shipments ECA financed, in terms of value, went to Great Britain, France, and Italy. The Middle East was the greatest supplier, with 27,261,000 bbl. valued at $69,919,000, followed by Western Hemisphere areas other than the United States with 21,198,000 bbl. valued at $67,880,000, while the share of the United States was held down to 9,729,000 bbl. valued at $67,279,000, representing 17 per cent of the quantity and 33 per cent of the value. Lubricating oil constituted 44 per cent of the value of shipments from this country, with aviation gasoline and motor gasoline accounting for another 30 per cent.

Levy pointed out that the drain on our domestic oil created by exports to western Europe has been sharply reduced, exports during the first 6 months of this year being 40 per cent under those of the corresponding period of 1947, while shipments to all other nations declined only by an estimated 6 per cent.

Under the Marshall plan, European refineries which at the end of 1947 could handle 380,000 bbl. daily, expect to increase their capacity to more than 500,000 bbl. by next June

ECA PROGRAMED SHIPMENTS OF CRUDE OIL AND REFINED PRODUCTS
COUNTRY OF DESTINATION
Six Months—April-September 1948

	Quantity (1,000 bbl.)			Value (1,000 dollars)		
Country—	Crude oil	Refined products	Total	Crude oil	Refined products	Total
Austria	.....	93	93	.....	591	591
Denmark	51	2,695	2,746	122	10,612	10,734
France	12,246	2,413	14,659	29,568	15,065	44,633
Germany—Bizone	699	.....	699	1,451	.....	1,451
Germany—French	7	481	488	15	2,635	2,650
Greece	.....	1,148	1,148	.....	4,508	4,508
Italy	8,704	2,715	11,419	19,251	12,679	31,930
Netherlands	.....	2,775	2,775	.....	10,799	10,799
Norway	.....	1,590	1,590	.....	5,902	5,902
United Kingdom	2,694	16,395	19,089	5,593	69,389	74,982
French No. Africa	.....	2,439	2,439	.....	10,052	10,052
Other French D.O.T.'s	.....	1,043	1,043	.....	4,843	4,843
Total	24,401	33,787	58,188	56,000	147,075	203,075

Countries for which a program has not been fully determined are excluded from this table; in addition more than half the programed shipments for Greece have been excluded because a final breakdown of quantity and value by source is not yet available.

Value and quantity figures are preliminary estimates subject to amendment as and when data on actual transactions become available.

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS INTO ECA COUNTRIES*
By Semiannual Periods, 1947 and First Half 1948. (All Quantities in 1,000 Bbl.)

	Crude oil			Refined products†			Total crude oil & refined products		
Country—	1948 Jan.-June	1947 July-Dec.	1947 Jan.-June	1948 Jan.-June	1947 July-Dec.	1947 Jan.-June	1948 Jan.-June	1947 July-Dec.	1947 Jan.-June
Austria	.....	.....	.....	191	127	.....	191	127	.....
Belgium	748	399	615	6,532	7,564	6,375	7,280	7,963	6,990
Denmark	70	91	28	3,752	5,635	2,444	3,822	5,726	2,472
France	22,182	19,692	15,175	4,593	4,405	7,889	26,775	24,097	23,064
Germany-Bizone	755	273	.....	3,882	3,380	3,249	4,637	3,653	3,249
Iceland	.....	.....	.....	578	276	202	578	276	202
Ireland	.....	.....	.....	2,213	920	1,260	2,213	920	1,260
Italy	5,287	4,280	2,797	3,940	6,950	8,298	9,227	11,230	11,095
Netherlands	3,580	2,734	3,287	12,198	10,531	12,341	15,778	13,265	15,628
Norway	.....	.....	.....	5,177	4,177	3,091	5,177	4,177	3,091
Portugal	1,000‡	1,200‡	650‡	836	1,087	737	1,836	2,287	1,387
Sweden	1,930	2,084	1,245	11,126	11,281	7,842	13,056	13,365	9,087
Switzerland	.....	.....	.....	2,973	3,219	2,260	2,973	3,219	2,260
Turkey	.....	.....	.....	1,207	1,107	770	1,207	1,107	770
United Kingdom	14,004	9,070	8,434	50,398	48,769	34,414	64,402	57,839	42,848
Total	49,556	39,823	32,231	109,596	109,428	91,172	159,152	149,251	123,403

*Data not available for Greece, Luxembourg, French Zone in Germany, Dependent Overseas Territories, and China. †Liquid products only. ‡Estimated.

ECA PROGRAMED SHIPMENTS OF CRUDE OIL AND REFINED PRODUCTS BY BY PRODUCTS AND SOURCE

(Six months—April-September 1948)

Commodity—	Source and quantity (1,000 bbl.) United States	Other W. Hemi.	Middle East	Total	Source and value ($1,000) United States	Other W. Hemi.	Middle East	Total
Crude oil	925	5,690	17,786	24,401	2,603	14,680	38,717	56,000
Aviation gasoline	1,235	141	34	1,410	8,620	937	228	9,785
Motor gasoline	2,040	5,184	2,438	9,662	8,591	19,722	9,384	37,697
White spirits	121	35	.....	156	575	153	.....	728
Kerosine	199	2,985	887	4,071	784	11,765	2,930	15,479
Gas and diesel	2,207	2,873	1,167	6,247	8,263	9,303	3,967	21,533
Fuel oil	217	4,249	4,930	9,396	563	10,996	12,586	24,145
Lubricants	2,164	.....	.....	2,164	29,409	.....	.....	29,409
Solid petroleum prod.	621	41	19	681	7,867	324	107	8,298
Total	9,729	21,198	27,261	58,188	67,275	67,880	67,919	203,074

Countries for which a program has not been fully determined are excluded from this table; in addition more than half the programed shipments for Greece have been excluded because a final breakdown of quantity and value by source is not yet available.

Value and quantity figures are preliminary estimates subject to amendment as and when data on actual transactions become available.

and to more than 1,000,000 bbl. by the end of 1952. In addition, companies of the participating countries plan to raise their refining capacity outside of Europe and the United States from 1,000,000 bbl. daily to 1,400,000 bbl. and to increase their crude production in such foreign areas from 1,000,000 to 1,800,000 bbl. daily.

"The ECA recovery program in western Europe means an apparent sacrifice now and in the future for American business," Levy said. "It involves willingness to finance competitors in the oil industry in building up their facilities and organizations to operate in future world markets, in order to permit western Europe to be able to meet its international balance of payments and get on its feet economically.

"However, without such a program there would neither be enough oil to supply the ever-growing needs of the world, nor might there be a free world in which our nation could prosper."

Details of the European imports for the first 6 months of 1948 are given in the accompanying tables.

U. K. Program for Expanding Refining Capacity Will Yield 400,000 Bbl. Daily

WHEN the United Kingdom's extensive refinery expansion program is completed, possibly sometime in the early 1950's, the daily plant capacity will approximate 20,000,000 tons annually, or about 400,000 bbl. daily, according to the projected plans of the U.K.'s 1948 capital expenditure schedule as presented to Parliament.

Current refinery capacity in the U.K. totals 106,050 bbl. daily, with the breakdown showing 70,550 bbl. for England, 18,500 bbl. for Scotland and 17,000 bbl. for Wales.

The ultimate aim of this expansion program is to save large sums of dollars by refining crude within the U.K. rather than importing refined products from dollar areas. An important subsidiary gain will be the establishment of a petroleum chemical industry.

Final cost of the program will be about £95,000,000 ($380,000,000). Value of dollar saving is somewhat dependent upon the speed with which the refineries can be built. "Details of the plant requirements and the building effort needed must be planned in parallel with other projects (i.e., electric generating stations) which make substantial calls on the same resources," it was pointed out.

The British Government has approved the expansion program in principle but before the details are finally worked out, a realistic building and plant production program is being worked out to meet current equipment shortage difficulties.

"Special action will be required to make sure that buildings and plants are matched throughout and that the program is carried out on schedule," the report to Parliament concluded.

Sinclair Gets Protection For Ethiopian Drilling

After several months of inactivity, due to the political situation in Ethiopia, Sinclair Petroleum Co., a subsidiary of Sinclair Oil Corp., has resumed preparations to drill its first wildcat in that country's Ogaden area.

An agreement has been reached between British authorities and the Ethiopian Government for effective police protection, Sinclair explained. "And in view of the energetic measures taken by the (Ethiopian) Government, it is believed that there will be no further interference with the activities of the Sinclair company," it was said.

All of the equipment already in Ogaden is available for immediate resumption of operations, it was explained.

(For two exclusive feature-length articles on Sinclair's Ethiopian concession, with accompanying physiographic diagram, see The Oil and Gas Journal, August 5, page 43, and August 12, page 48.)

International

WORLD-WIDE OIL DEVELOPMENTS

Arabian Crude Output Up, Refinery Runs Are Lower

Saudi Arabia's crude-oil production increased to 13,233,028 bbl., or approximately 441,101 bbl. daily, during September, according to the Arabian American Oil Co. This figure compares with the August output of 13,110,349 bbl., or about 422,914 bbl. daily.

Crude processed at Armaco's Ras Tanura refinery in September amounted to 3,703,513 bbl., or around 123,450 bbl. daily. This compares with the August refinery runs of 3,925,339 bbl. or 126,624 bbl. daily.

Crude-oil production for the first 9 months of 1948 amounted to 99,410,950 bbl., an average of 362,814 bbl. daily. Crude run in the refinery for the same period was 33,512,896 bbl., an average of 122,310 bbl. daily.

Nomads to Hold Luncheon During A. P. I. Convention

The Nomads, international society of oil-industry equipment sales representatives, will hold a luncheon during the annual A.P.I. meeting in Chicago, November 8 to 11 in the Upper Tower Ballroom of the Stevens Hotel at 12:30 noon, Wednesday, November 10.

Jack C. Ballagh of Patterson-Ballagh Co. originated this idea at the A.P.I. meeting in 1947 and it is planned to make it an annual affair. Ballagh is in charge of the arrangements this year.

French Output Drops

French production of crude oil dropped to 3,449 metric tons, approximately 840 bbl. daily, in July, compared with 4,652 metric tons, 1,120 bbl. daily, in June, according to the French Ministry of Industry and Commerce. The only indigenous oil production in France comes from the Pechelbronn field.

Novel Use of Gas Pressure Displaces Pumps for Gathering Jusepin Crude

by D. H. Stormont

AN unusual method of handling crude, probably not used on so extensive a scale anywhere else in the world, is a unique feature of the adjacent Jusepin and Mulata fields operated by Creole Petroleum Corp. in Eastern Venezuela.

Although Jusepin has been in production since 1939 and Mulata since 1942, practically none of the 145,000,000 bbl. of crude produced to date had to be pumped until the crude reached the main pipe-line stations. To accomplish this, the conventional gathering-station pumps were replaced by an ingenious system of "blowcase" or pressure traps. In this special equipment, high-pressure gas supplies the "push" or pump action necessary to transport the oil.

Use of these blowcases is made possible largely by the fact that the oil production all comes from one concession and the problems of measuring and segregating the crudes from several tracts of land of separate ownership need not be considered. Another factor affecting the economy of their usage is that the large number of wells involved assures a plentiful supply of high-pressure gas for wells no longer capable of flowing their production to the field pump station.

International
WORLD-WIDE OIL DEVELOPMENTS

This is another in a series of on-the-spot reports of operations in Venezuela by a Journal staff member who recently completed an extensive field trip in that country.

Eventually, of course, conventional pumping equipment will have to be installed—after reservoir pressures have declined to a point where insufficient high-pressure gas is readily available—but until that time Creole engineers have estimated that an annual savings of about $70,000 is being realized.

In the Jusepin field, where 426 oil producers have been completed to date, practically all of the field's daily production of 43,000 bbl. is moved by well-head pressures to 14 gathering stations. For Mulata's 220 oil producers, seven gathering stations are used to handle a daily output of about 23,000 bbl., this oil likewise being flowed to the stations by well pressures. The number of wells connected to each of the 21 stations, and the volume of oil handled daily during a recent typical month, are shown in the accompanying table. (Note: Several wells were temporarily off production or inactive in each field so that the total number of wells connected does not agree with the number of oil producers completed in each field.)

At each of the 21 gathering stations the crude from high-pressure wells enters a manifold connected to the high-pressure separator, operated at about 160 psi. Crude from low-pressure wells is taken through a second manifold and enters a low-pressure separator, operated at about 20 psi. Flow lines from the various wells served by a gathering station are connected to both the high and low-pressure manifolds so that any one well can be switched to either manifold as desired.

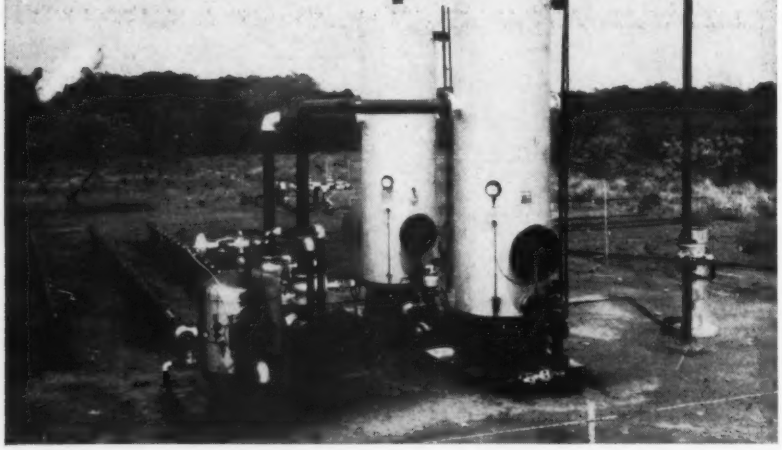
Three-Way Valves Used

Gas from the high-pressure separator passes to a three-way valve which permits some gas to enter a line running to the upper part of the blowcase. The remainder goes either to pressure-maintenance plants or to a flare. Gas from the low-pressure system is run to a flare.

Crude from the low-pressure separator flows into a blowcase, either 36 or 48 in. in height as the volume of crude handled requires. When sufficient oil has entered the trap, either 2 or 3 bbl. depending upon the size, a liquid-level control operates a pilot valve which in turn actuates the three-way valve and permits the high-pressure gas to enter the blowcase. As soon as pressure in the trap has built up to about 160 psi. the three-way valve operates to shut off gas from the blowcase. At the same time, oil in the blowcase is dumped and the gas pressure forces the oil into the discharge line, which is connected to oil line from the high-pressure separator.

As soon as the blowcase has discharged to a pre-set level, the liquid-level controller operates to close the discharge line, and the filling cycle begins again. Time required for a complete cycle is roughly from 30 seconds to 3 minutes, depending upon the

Complete gathering manifold at Jusepin field. The two separators at right are for high-pressure and low-pressure wells, respectively, whereas blowcase at left receives oil from low-pressure separator and discharges it into same line that delivers high-pressure oil to the central station. Note three headers in rear which connect to the 3-in. test line to the low-pressure and high-pressure separator, respectively



DATA ON GATHERING STATIONS IN JUSEPIN AND MULATA FIELDS

Station No.—	Wells connected	Manifold connections	Daily vol. handled— Oil (bbl.)	Gas (M.c.f.)
Jusepin field:				
J-1	31	40	2,850	4,350
J-2	46	50	4,780	14,770
J-2A	50	50	5,770	13,400
J-3	28	40	5,030	12,350
J-4	21	30	1,050	4,270
J-5	33	40	2,600	6,100
J-6	28	30	1,280	5,780
J-7	27	30	3,460	8,370
J-8	24	30	2,600	5,360
J-9	23	30	4,020	10,900
J-10	27	30	1,330	6,200
J-11	19	20	1,430	4,710
J-12	18	20	1,820	6,400
J-13	31	40	5,530	12,620
Total	406	480	43,650	115,580
Mulata field:				
AM-1	38	40	6,950	12,450
AM-3	39	50	2,770	5,130
AM-4	30	30	3,980	8,340
AM-6	20	60	2,520	8,860
AVP-1	32	40	2,230	7,850
AVP-2	19	20	2,510	7,350
AVP-5	35	40	2,640	6,790
Total	213	280	23,600	56,770

quantity of oil being handled. A check valve installed in the crude-inlet line of the pressure trap prevents back flow of oil when pressure starts building up in the trap, while another check valve in the discharge line prevents crude oil from the high-pressure system from backing up into the blowcase.

Crude Is Never Pumped

At Jusepin the combined crude-oil streams formerly flowed to the central field station where three 55,000-bbl. cone-roofed tanks were provided. Following completion of its crude-stabilizing and desalting plant late last year, however, Creole now flows all Jusepin crude directly to this plant. Thus the crude is never pumped until it is discharged from the plant to the nearby pipe-line terminal where it is placed in two new 55,000-bbl. floating-roof tanks.

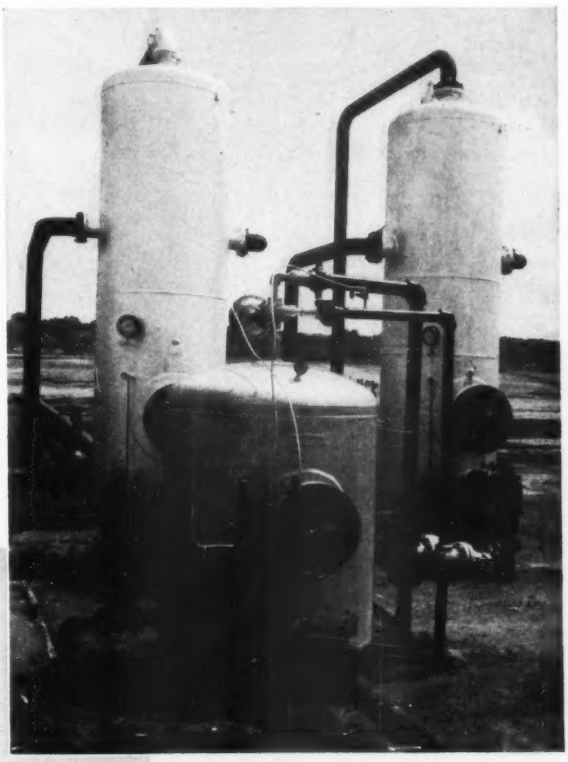
Mulata crude from the seven gathering stations flows to two 55,000-bbl. cone-roof tanks for shipment to Puerto La Cruz. When the company completes its new crude-stabilizing and desalting plant for that field later this year, Mulata crude will flow directly to it.

In order that wells may be tested individually, a 3-in. test line is connected into both the high and low-pressure manifolds and leads to the central field station where separators and test tanks have been erected. At Josepin twelve 1,000-bbl. test tanks are used and at Mulata there are nine 5,000-bbl. and five 1,000-bbl. tanks.

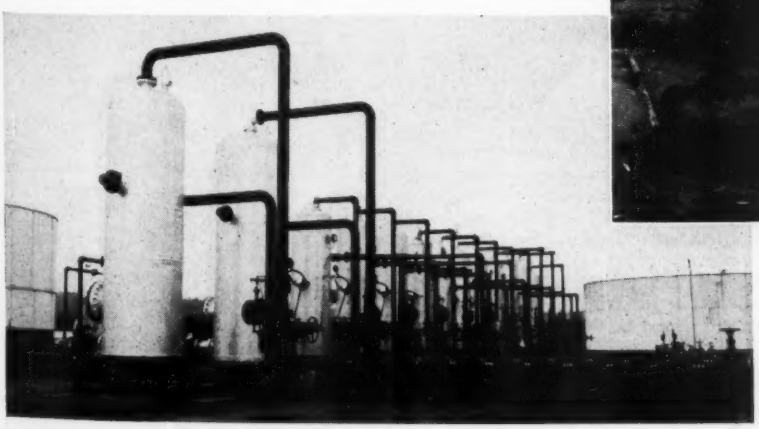
This system of testing wells has not proved entirely satisfactory because of the long distances involved—in some instances 2 or 3 days' production from a weak well is required to fill the several miles of line leading to the test separator and tankage. To overcome this disadvantage, Creole is in the process of installing portable well checkers to test individual wells at the gathering stations.

Morocco Gets Small Well

Another small oil well has been brought in around the Soukeb-Arba area of French Morocco by the Societe Cherifiene des Petróles. It has a daily potential of 8,000 liters, or 50 bbl. This will supplement the 34,000 liters, 210 bbl., produced daily by the four other wells in this region. This output is consumed locally.



Close-up of blowcase shows gas-operated mechanism which permits delivery of low-pressure oil into high-pressure oil line for transfer to central gathering station



Battery of separators at Jusepin central station No. 2. The two large separators in foreground handle general production from wells tied in directly to the station. Remaining separators are for test of wells in the outlying production manifolds

Accident and Fatality Rates Show First Postwar Decline

CONCENTRATION on oil-industry safety through the various programs carried out by all oil companies has brought about the first postwar decline in the rising accident and fatality rates of the industry which previously had been showing a definite upward trend.

The appreciable postwar decrease of the accident and fatality rates is reported in two recent surveys—the National Safety Council contest report (for the period July 1, 1947, to June 30, 1948), and the American Petroleum Institute's annual summary of injuries in the petroleum industry for 1947. Increases in the injury-index number were reported by both surveys in the department of retail marketing, and a slight gain was also indicated in the drilling department, which last year led all other departments in the decrease of its injury rate.

Officers Elected

James Tanham, vice president of The Texas Co., was elected chairman of the board of the National Safety Council, and D. A. Klemme, Stanolind Oil & Gas Co., was named general chairman of the petroleum section of the National Safety Congress at the group's thirty-sixth annual meeting recently in Chicago.

Other officers named include: Don Attaway, Arkansas Fuel Oil Co., vice chairman for production; W. O. Wilson, Standard Oil Co. (Ind.), vice chairman for marketing; D. M. Farrell, Shell Pipe Line Corp., vice chairman for pipe lines; Roy A. Randels, Shell Oil Co., Inc., vice chairman for manufacturing; J. Doyle Settle, American Association of Oil Well Drilling Contractors, vice chairman for exploration and drilling; and F. G. Wilson, American Petroleum Institute, secretary of the petroleum section.

One-hundred and eighty-one oil companies (174 last year) participated in the National Safety Council's contest. The companies reported a total exposure exceeding 543,000,000 man hours during the contest year. Over the contest period there were 8.80 disabling injuries per 1,000,000 employe-hours worked (frequency rate); there were 0.92 days lost per 1,000 employe-hours worked (severity rate); and an injury-index rate (severity rate multiplied by 10 plus the frequency rate) of 18—a decrease of 16 per cent from the previous period.

The A.P.I. report (covering the calendar year 1947) included 231 oil companies (220 last year) employing 452,387 persons. It reported an injury-index number of 26.46, a decrease of 6.9 per cent from its 1946 figure which was the highest figure reported since 1938. The 139 fatalities and permanent total disabilities for 1947 represented a decrease of 13.5 per cent from the preceding year. Those departments showing a drop in deaths and permanent total disabilities were: refining, marketing, exploration, natural gasoline, oil pipe line, and gas pipe line. Those departments showing slight increases included: retail marketing, drilling, and production.

Shell Refinery Wins A.P.I. Award

Nearly 2,000,000 accident-free hours, a new all-time record for Pacific Coast refining, won for the Wilmington-Dominguez refinery of Shell Oil Co., Inc., the A.P.I.'s "Accident Prevention Award" for 1948. The award was for the unprecedented safety record covering the period from November 25, 1947, to August 3, 1948, during which time a total of 1,959,119 working hours were completed without a disabling injury.

Of the total 181 contestants in the National Safety Council report, 89 had both frequency and severity rates below the national average, and 12 companies had perfect records for the entire year. These companies and their departments with perfect records were: Manufacturing—Esso Standard Oil Co. (Everett refinery); natural gasoline—General Petroleum Corp., Carter Oil Co., and Globe Oil & Refining Co.; oil and gas pipe line—Ajax Pipe Line Corp., Ashland Oil & Transportation Co., Arkansas Pipe Line Corp., and Root Petroleum Co. Also certificates were awarded those companies showing a decrease in their injury rates below the previous year.

Sinclair Prairie Oil Co., Tulsa, was awarded the National Safety Council's fleet-safety trophy in the Group 1 petroleum division for the record of its 130,000 vehicles traveling 2,474,000 miles with only 11 accidents to achieve the low accident rate of 0.44.

A certificate of achievement was awarded the following departments of companies which had fewer than 100,000 man hours of exposure during the contest period (the minimum for entry in the contest) but had a perfect record for the contest year and had 100,000 or more injury-free man-hours of exposure since the date of the last reportable injury: Oil and gas pipeline department—Magnolia Petroleum Co.; producing department—Socony-Vacuum Oil Co., Inc.; and wholesale marketing department—Leonard Refineries, Inc.

The 1947-48 National Safety Council petroleum section award winners in the various departments follow (Group A refers to the top 40 per cent of the companies showing the higher number of man-hour exposure. Group B includes the lower 60 per cent):

Manufacturing department, Group A: Continental Oil Co., Cities Service Oil Co., and General Petroleum Corp. (Group B) Ohio Oil Co., Carter Oil Co., and Globe Oil & Refining Co.

Oil and gas pipe-line department, Group A: Shell Pipe Line Corp., Southern Natural Gas Co., and Atlantic Pipe Line Co. (Group B) Ajax Pipe Line Corp., Ashland Oil & Transportation Co., Arkansas Pipe Line Corp., and Root Petroleum Co. (all Group B with perfect records).

Producing department, Group A: Continental Oil Co., Atlantic Refining Co., and Stanolind Oil & Gas Co. (Group B) Mid-Continent Petroleum Corp., Carter Oil Co., and Ashland Oil & Refining Co.

Retail marketing department: Socony-Vacuum Oil Co., Inc., Atlantic Refining Co., and Standard Oil Co. (Ohio).

Drilling department: Stanolind Oil & Gas Co., Trinidad Leaseholds, Ltd., and Texas Pacific Coal & Oil Co.

Exploration department: Carter Oil Co., Atlantic Refining Co., and Stanolind Oil & Gas Co.

Trunkline Still Seeks FPC Authority for New Line

WASHINGTON.—The Federal Power Commission recently opened new hearings on the application of Trunkline Gas Supply Co. for authority to build a 30-in. gas transmission line from Texas to Iowa, to receive additional evidence following a staff recommendation that a certificate be denied.

In its application, the company stated that it proposed to offer wholesale service to a number of gas companies whose facilities lie along the route of the line. The staff recommendation for rejection of the application was based on the contention that the company had not proven that it had enough contracts to justify the line.

The company, headed by Ralph K. Davies, formerly vice president of Standard Oil Co. of California and Deputy Petroleum Administrator for War who now heads American Independent Oil Co. which announced last July that it had secured an extensive concession in the Kuwait neutral zone, has some fixed contracts, but a number of companies which might be expected to take advantage of Trunkline service were evasive as to whether they would sign up. Davies' headquarters are at 111 Sutter Street, San Francisco 4, Calif.

WASHINGTON WATCHING

BY BERTRAM F. LINZ

Oil Taxes Stay

WASHINGTON.—The very fact that three federal oil taxes are producing revenue at a rate close to $575,000,000 a year means that any action taken by Congress next year to straighten out the excise tax muddle will pass these levies by.

For some time the House Ways and Means Committee has been considering revamping the excise taxes to eliminate levies which, in revenue and in their reception by the public, are nothing more than nuisance taxes, as for instance the luggage manufacturers' excise tax, which produced $96.40 in September, and the tax on optical equipment, which produced $76.10.

But in view of the Government's great need for revenue there is no likelihood that Congress will eliminate any taxes which return substantial amounts, such as the gasoline tax which has been averaging $40,000,000 a month this year, the lubricating-oils tax which runs almost $7,000,000, or the levy on pipe-line transportation which, while running only a little over $1,000,000 a month, is easy and cheap to collect.

There will be no room in next year's budget for any further important tax reductions nor even for any multi-billion dollar economy in government expenditures.

The military estimates it could use $25,000,000,000 and may get around $15,000,000,000; foreign aid, if a new lend-lease program is adopted, will run to $8,000,000,000; and about $7,000,000,000 will be required for the Veterans Administration. That's some $30,000,000,000 out of a budget which the Republicans would like to hold to $40,000,000,000 or less, although its a good guess it may run over that figure. And when it comes to paring down estimates for the regular functions of the Government it's a case of a few million here and a few million there, and the savings don't add up to a very significant fraction of our $250,000,000,000 national debt, as the Republican Congress found out 2 years ago when it promised to save $6,000,000,000 and wound up with little more than a third of it.

And while it is fundamental that the time to save money is when you are prosperous, as the nation is today, with the possibility that that long-expected depression or a not-unexpected war are just beyond the horizon, it isn't likely that even the most tax-conscious congressman will seriously urge any extensive tax slashes in the near future.

Marshall-Plan Problems

INDICATIONS are that members of Congress will study the election results closely before deciding what attitude they will adopt toward the European recovery program.

Preelection efforts to poll the more than 500 members of Senate and House brought only 86 returns, and the view expressed by 91 per cent of them that the Marshall plan was not a major issue in the campaign and of slight interest to their constituents led some officials in Washington to say privately that it will be necessary to resell ERP to the new Congress.

Not all of the 86 members responded to all of the questions, particularly as to the money that should be appropriated next year for the Economic Cooperation Administration which, in January, is expected to ask Congress for a supplemental appropriation of more than $1,000,000,000 to carry it through the final 3 months of the fiscal year. While a substantial minority favored giving ECA from $5,000,000,000 up to whatever it called for, a large majority favored keeping the appropriation under $4,000,000,000 and a few suggested total elimination of the program. For the most part, however, the answers indicated that members will wait to see what position the President takes next year.

For the most part, too, the answers to the questionnaire showed the Democrats are more enthusiastic over ERP than the Republicans; that most of the Democrats and a slight majority of the Republicans feel that ECA is being efficiently administered, and that a majority in both parties believe the participating countries are not cooperating fully to reach the Marshall plan's objectives.

A large Democratic majority held that ERP is not contributing to inflation in this country to any significant extent, but a large Republican majority took the contrary view.

Pipe-Line Tactics

NEW tariffs recently filed with the Interstate Commerce Commission by Petroleum pipe-line companies are said to be liberalizing their shipping rules, possibly presaging an effort by some of the lines to develop a big-scale oil-transportation service.

This trend, apparently, is the result of government pressure upon the lines to set up minimum tender requirements which can more readily be met by small operators, and a realization by the companies that profits to be made by carrying oil for others than themselves aren't necessarily undesirable.

Great Lakes Pipe Line Co. is generally credited with having led the way into this development. That system carries oil for eight petroleum-company owners and a scant dozen others. When it carries oil for its owners, the latter transfer money from one pocket to another, for transportation charges, later putting some of it back in the first pocket, as profit, but when oil is carried for a non-owner the profit is "new" money.

That some of the pipe lines now consider this outside business important is indicated by a provision in tariffs that if tenders exceed capacity an equitable proration system will be put into effect. This will eliminate a long-standing complaint by nonowner shippers that when the pipe lines got into a jam they sidetracked their oil in favor of tenders from owners.

Some companies also are understood to be building or planning facilities for the reception of oil to be moved and in other ways, gradually developing real transportation service.

A recent report by the ICC complimented the pipe-line companies highly for their success in reducing rates during a period when they were being increased by other forms of transportation, but called upon a number of lines to set up minimum tenders of 10,000 bbl. to permit nonowners to make use of them.

Oil's Behavior Watched

THE Department of Justice is watching closely the operation of the voluntary allocation agreements made under Public Law 395 and will step in promptly should they be used for any purposes other than those specified in the act.

So far, however, the oil-industry agreement has been put into effect only on the West Coast, where the refinery strike necessitated action to spread available supplies. Two or three informal complaints have been received at the department from that area, but it is understood that they do not attack any action under the agreement but refer to other alleged improprieties. The complaints so far received have been brought to the attention of the accused companies through the Oil and Gas Division.

Last winter, not a single complaint was filed regarding any of the actions taken under the temporary agreement adopted to meet the fuel-oil shortage, and this very favorable situation is understood to have weighed heavily with Department of Justice antitrust officials in approving the present agreement.

Department officials, however, do not intend to relax their vigilance and will follow closely any steps which the industry may find it necessary to take under the agreement to meet any emergencies that may arise this winter.

The experience of the department may play an important part in guiding congressional action in the event legislation to extend Public Law 395, which expires at the end of next February, is taken up for consideration. And extension of the act is the only way to keep the steel agreements in effect after that time.

The attorney general ruled some weeks ago that voluntary allocation agreements made prior to February 28, next, could be kept in effect for a period of 6 months thereafter, and Commerce officials expressed the belief the various industries would take advantage of that ruling. The steel industry, however, is anything but happy with its agreements—they reduce the amount of steel on the "free market," leading to complaints from important consumers who do not enjoy allocations, and they give the government a hand in control of the industry which some steel men fear may be used as the entering wedge for more regulation. So it has been indicated that the agreements for the oil and other industries will be cut off sharply when the February deadline arrives.

However, if the act is continued, the steel industry is expected to go along, since refusal to make agreements might result in more disadvantages than compliance would.

Canadian Oil Official Will Speak at Compact Meeting

One of the featured speakers at the Interstate Oil Compact Commission's annual meeting in Wichita, Kans., December 9-11, will be N. E. Tanner, minister of lands and mines, Province of Alberta, Canada. I. N. McKinnon, chairman of Alberta's Petroleum and Natural Gas Conservation Board will attend the Compact meeting with Tanner.

Theme of the Wichita meeting will be discussed by speakers of nationwide reputation.

Tanner will discuss oil and gas development in Canada, analyzing present activity and potentially productive areas, reviewing the Leduc field, and emphasizing conservation work.

NPC Committee Named on Manpower Requirements

WASHINGTON.—Membership of a special committee to study the essential wartime manpower requirements of the petroleum industry, to be headed by W. W. Vandeveer of Cleveland, was announced last week by Chairman Walter S. Hallanan of the National Petroleum Council.

The investigation was undertaken by the council at the request of the Oil and Gas Division after discussions with the National Security Resources Board and the Armed Services Petroleum Board regarding their responsibilities in connection with civilian mobilization in the event of an emergency, Hallanan explained.

The committee will study, estimate, and report on the present manpower engaged in the industry, classified by functional divisions, skills, and geographic areas, and the adequacy of currently available employment data and ways and means of overcoming such deficiencies as may be found.

Membership of the committee is as follows: John A. Bartlett, American Mineral Spirits Co., Corpus Christi, Tex.; Burt R. Bay, Northern Natural Gas Co., Omaha; E. W. Berlin, Standard-Vacuum Oil Co., New York; Sidney Belither, Shell Oil Co., Inc., San Francisco; Jacob Blaustein, American Trading & Production Corp., Baltimore; George F. Bush, Mid-Continent Petroleum Corp., Tulsa; S. A. Candee, Tide Water Associated Oil Co., San Francisco; Robert Dailey, Humble Oil & Refining Co., Houston; John C. Day, Western Petroleum Refiners Association, Tulsa; John Ferguson, Independent Natural Gas Association, Washington; John W. Frey, American Petroleum Institute, Washington.

Robert W. Hendee, Colorado Interstate Gas Co., Colorado Springs; Howard P. Holmes, Two-State Oil Co., Dallas; Carl A. Johnson, Holly Development Co., Los Angeles; L. Dan Jones, Independent Petroleum Association of America, Washington; W. M. Keck, Jr., Superior Oil Co., Los Angeles; John M. Lovejoy, Seaboard Oil Co. of Delaware, New York; W. D. Mason, Sun Oil Co., Philadelphia; Robert S. Newhouse, Stanolind Oil & Gas Co., Tulsa; Donald P. O'Hara, National Petroleum Association, Washington; D. T. Pierce, Sinclair Refining Co., New York; Kenneth Schaffer, Standard Oil Co. of California, San Francisco; W. F. Sehmann, National Stripper Well Association, Wichita Falls; Charles Shaw, Standard Oil Co. (N. J.), New York; James Tanham, The Texas Co., New York; H. L. Thatcher, Chattanooga, Tenn.

Michigan Wildcat Has Makings of New Field

Prospects for a new North Central Michigan oil field were bright this week when Merrill Drilling Co. brought in its 1 Fred J. Sheahan, SE SW SW 7-15n-4w, Isabella County. The wildcat, which is 5 miles east of the old Rosebush field, was out of control for 10 hours, and estimates of production went as high as 5,000 bbl. per day. After the well had been brought under control, it flowed 80 bbl. of oil in 2½ hours, pinched. Production is from the Dundee at 3,782-87 ft., total depth; 5½-in. casing was set at 3,778 ft. This is the Merrill company's fourth try in the area. The well came in unexpectedly while the drill was out.

NEW OFFICERS OF I.N.G.A.A

Officers of the Independent Natural Gas Association of America elected for 1949 at the association's annual meeting held in Tulsa last week are: F. W. Peters, treasurer, Oklahoma Natural Gas Co., Tulsa, treasurer; William H. Wildes, president, Republic Natural Gas Co., Dallas, second vice president; A. B. Harper, president, Arkansas-Oklahoma Natural Gas Co., president; and John A. Ferguson, Washington, D. C., executive director

Flare-Gas Waste Greatly Reduced, Operators Tell Texas Commission

by Dahl M. Duff

AUSTIN.—Operators in 17 Texas oil fields and officials of three major transmission pipe-line companies described their plans for further conservation of casing-head gas at a Railroad Commission hearing here, October 26.

By their testimony, the operators sought to avert drastic commission action shutting in oil production in order to halt gas flaring. The commission called the hearing in a show-cause order requiring the operators to explain why the fields should not be closed in because of gas waste.

Data given at the hearing revealed that considerable progress has been made during the last 2 years toward the goal of utilization of all casing-head where economically possible. Programs are under way to handle gas still being flared in substantial quantity, but the testimony showed that the operators are facing such problems as unavailability of necessary equipment, constantly increasing production, and in some cases a lack of a sufficiently attractive market.

Pipe Lines Take Much

El Paso Natural Gas Co.'s present and projected take of oil-well gas in West Texas was discussed in detail at the hearing by Paul Kayser, president of the company. He said plans to utilize all gas in the Permian basin are contingent on adequate Federal Power Commission certificates and sufficient life of the fields to justify the expenditure. Conservation of this gas, he asserted, would add immeasurably to internal security and national defense.

The 305,000,000 cu. ft. daily of Texas gas now being furnished through El Paso Natural's line to California is equal in value to five times the power generated by Boulder Dam, Kayser said. During the last 9 months, of 102,000,000,000 cu. ft. marketed by the company, 61,000,000,000, or 59.8 per cent, has been residue gas. This, Kayser continued, is equivalent to 7,000,000 bbl. of oil.

Kayser reviewed his company's plans in the various fields in West Texas, and indicated El Paso Natural would contract to take any additional amount of flare gas where feasible and where the reserve has substantial life.

Gardiner Symonds, president of Tennessee Gas Transmission Co., told the commission that of 405,000,000 cu. ft. daily purchased by his company in August, 20 per cent was flare gas from nine fields along the Gulf Coast. The company was committed to handle 31 per cent of its take, in casing-head, but operators failed to deliver 11 per cent of this, he said.

Tennessee Gas, Symonds said, has FPC approval to increase capacity of its system to 660,000,000 cu. ft. daily, and expects to be at 600,000,000 cu. ft. daily in 2 weeks. The company will buy 50,000,000 cu. ft. now available if it can be secured on a long-term basis. He said his company has never refused any flare gas which could be delivered on a reasonable basis where the FPC would allow it. In response to a question, Symonds said the FPC has set 20 years as the standard for a long-term contract.

Specific Plans Detailed

The third pipe-line official was E. M. Smith, district manager in Houston for United Gas Pipe Line Co. He said his company has a contract to purchase all flare gas in South Caesar field and that it would be glad to take gas from Heyser if Tennessee Gas Transmission's plans to handle this do not materialize. United has agreed to take all available flare gas from Conroe and is preparing to handle low-pressure gas from Magnet Withers and North Withers.

Field by field, the hearing brought out in testimony from the operators the following information on gas flaring and plans for utilization:

South Caesar field, Southwest Texas.—A pipe line has been laid, and United Gas Corp. has agreed to take the gas now flared. Sales are expected to start in the near future.

Heyser, Southwest Texas.—The Heyser plant is now flaring some 20,000,000 cu. ft. daily, but 90 per cent of the operators have reached a tentative program for utilization of the gas, according to Nelson Jones, representing Humble Oil & Refining Co.

Conroe, Upper Gulf Coast.—Gas-lift compressors should be completed in April 1949, and another gasoline plant should be ready in August 1949, according to Jones. Humble's plant handles casing-head from the company's own wells. Midland Gasoline Co. has reached a contract with United to take up to 30,000,000 cu. ft. daily from its plant, and equipment should be in operation in about a year to handle the gas. This will eliminate flares except for 10 or 12 isolated wells.

North Withers and Magnet Withers, Upper Gulf Coast.—The Texas Co. is now flaring only 3,400,000 cu. ft. daily in North Withers, and about 5,000,000 cu. ft. daily in Magnet Withers. Low liquid content discourages saving of gas in these two fields, according to a company representative, but equipment has been ordered and plans are under way to compress all gas in both fields for disposition, possibly to a transmission line. Micheaux, et al, is now flaring 4,050,000 cu. ft. daily in North Withers, but is ready to cooperate in any economically sound plan to utilize the gas.

LaGloria, Lower Gulf Coast.—In this field, a survey shows 6,198,000 cu. ft. is being used daily as drilling fuel, and 13,320,000 cu. ft. daily is being flared. According to John Lynch, president of La Gloria Corp., all but one of 16 or 17 contracts have been signed for the processing of the field's gas through the company's proposed high-pressure absorption plant where compressors are to be in operation by next May.

Flour Bluff, Lower Gulf Coast.—About 10,600,000 cu. ft. daily is being flared from the Humble-Barnsdall plant to which all oil wells are connected. Flaring is to be eliminated after compressors become available next January. A market for this gas is now being sought.

Tijerina-Canales-Blucher, Lower Gulf Coast.—An injection plant now under construction should be completed next February, according to Jones of Humble. Sun Oil Co. is delivering all its gas to the Seeligson plant, and The Texas Co. is planning to install its own equipment for handling gas. La Gloria Corp. plans to use gas from the Blucher area in the La Gloria field plant.

North Cowden, West Texas.—Thirty operators have agreed to a gas-injection program under which some 25,000,000 cu. ft. daily will be returned to the reservoir. These facilities are expected to be in operation by the second quarter of 1950, along with new processing equipment, according to a representative of Stanolind Oil & Gas Co.

Foster, West Texas.—Plants are now processing 73½ per cent of all gas produced in the field, and steps will be taken over the next few months to eliminate all flares.

Fullerton, West Texas.—Additional facilities are planned for the utilization of more gas, according to a representative of Fullerton Oil Co. Of 645 wells in the field, 515 are now connected to the plant which under crowded conditions can handle 101,000,000 cu. ft. daily. In September, the plant processed 90 per cent of the wet gas available. In the southern part of the field, a group of operators have agreed to build a second plant with an ultimate capacity

of 55,000,000 cu. ft. daily. Phillips Petroleum Co.-Fullerton Oil have made an offer of a 6-year contract to take the gas planned for the plant, and this is now under consideration.

Goldsmith, West Texas.—By early 1949, all available gas is expected to be utilized where economically feasible to do so. Additional facilities are now under construction to increase capacity of Phillips' Goldsmith plant. This plant has more than doubled the amount processed since April 1947.

Levelland, West Texas.—About 2,000,000 cu. ft. daily is being used on leases, and about 13,000,000 cu. ft. daily flared. There is no plant in the field at present, but active plans are under way to build one with a capacity of 40,000,000 cu. ft. daily, according to Stanolind's representative.

McElroy, West Texas.—Phillips operates the Crane gasoline plant, handling what is probably the sourest gas in the state. El Paso Natural Gas plans to take 15,000,000 cu. ft. daily from the field. Of around 28,000,000 cu. ft. daily processed, 10,277,000 cu. ft. is vented from the plant, and about 4,000,000 vented from gathering lines. A Gulf Oil representative reported on an experimental gas-injection project but said the corrosive nature of the gas probably would make this impractical.

Seminole, West Texas.—Phillips reported compressors in the field are now overloaded, but it plans to install more to handle additional gas. According to Amerada Petroleum Corp.'s representative, possibilities of secondary-recovery have been under study, and results of this investigation should be available next month.

Slaughter, West Texas.—According to Stanolind, a processing plant with a designed capacity of 90,000,000 cu. ft. daily is 55 per cent completed and should be in operation by February 1949 with El Paso Natural taking substantially all residue.

Wasson, West Texas.—Wet gas flared amounts to 25,000,000 cu. ft. daily, 20,000,000 cu. ft. by connected wells and 5,000,000 by unconnected wells. The Shell Oil Co., Inc., plant is now processing 100,000,000 cu. ft. daily, and by next June sufficient additional capacity is expected to be completed to handle all gas in the field.

OIT Allots 103,000 Tons of Pipe, Tapline Application Delayed

WASHINGTON.—The Office of International Trade last week announced fourth-quarter export quotas of 70,000 net tons of seamless and 37,000 tons of welded casing and oil-line pipe, but officials said these did not include any authorization for the Trans-Arabian pipe line. The quota for seamless was 10,000 tons more and that for welded 8,000 tons less for the third quarter.

Practically all of the fourth-quarter allocations were for specific projects, details of which were withheld by the OIT, only 5,000 tons of seamless and 2,500 tons of welded being assigned for commercial export.

The OIT has had an application for 52,000 tons of pipe for Tapline under consideration for nearly 2 months, and it is understood a staff recommendation has been made to grant 30,000 tons.

Discussing the Tapline project recently, Secretary of Commerce Charles Sawyer indicated that Middle East political and military considerations are being given close study, but he did not indicate what factors were responsible for the delay in acting on the application, which has been in the hands of his advisory committee on requirements for several weeks.

After outlining the consideration that must be given to the effect of the export of this pipe upon the domestic oil and gas industry, Sawyer told the Boston Conference on Distribution October 26:

"We must also consider the effect of the pipe-line project on the unsettled situation in Arabia; will it stabilize or disrupt conditions in the Middle East? What will it do in the way of giving employment to people who are unemployed and starving? Would it be preferable to use an equivalent amount of steel for tankers to carry this same oil? If the license is refused on that assumption, how do we know that the steel would be used for tankers?

"It is clear also that military considerations are involved. The availability of 500,000 bbl. of oil per day in the Eastern Mediterranean may be of significance. On the other hand, we must consider the possibility that such a line might be destroyed or taken over by a prospective enemy."

Quick Stop to "Steal" Of Tidelands Demanded

WASHINGTON.—Quick action to "save the tidelands" against an alleged "oil trust" grab was urged upon President Truman over the week-end in separate letters from Sen. William Langer of North Dakota and the International Association of Machinists.

Langer urged that the President take legal action against coastal states where oil companies are drilling the tidelands, while the union asked him to "stop the oil trusts from grabbing the nation's tidelands oil resources valued at $10,000,000,000."

Citing the Supreme Court decision in the California case, Langer suggested that Attorney General Tom C. Clark "be requested to initiate such action or actions against the several states where various major oil companies are now engaged in exploring, drilling, and extracting oil and minerals from the submerged lands of these several coastal states.

In its letter, signed by top officials, the machinists union asked the President to order an immediate investigation of the manner "through which the oil trust is attempting to gain access to the tidewater oil resources" and instruct Secretary of the Interior Krug to call a public conference of "representatives of labor, farmers, consumers, and small business men—all organized groups free of oil domination—to mobilize forces for the defense of the peoples' rights in this great natural resource."

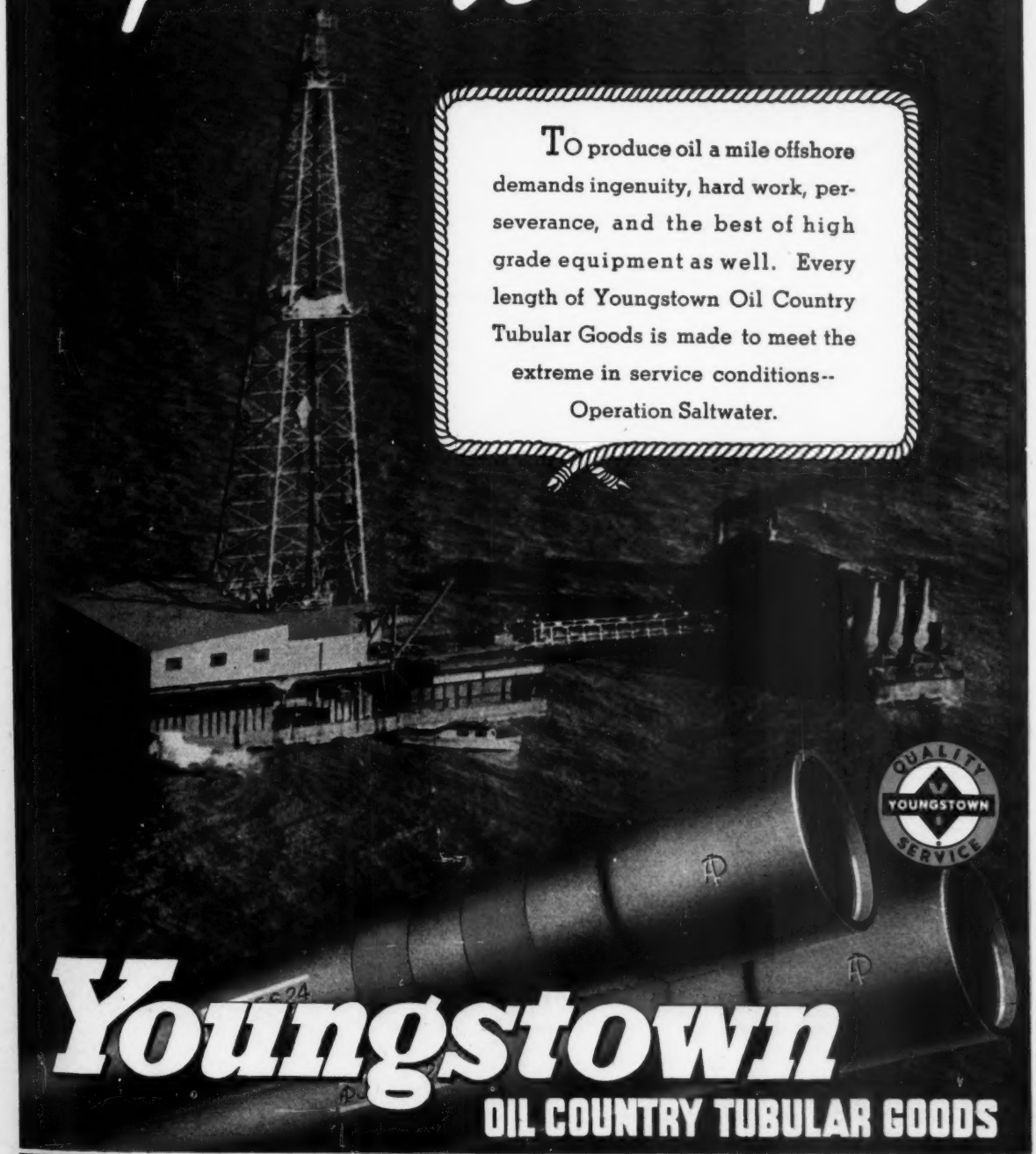
Next Week

THE ANNUAL A.P.I. NUMBER

This issue always is of unusual significance and interest. A special section will contain, in convenient summary form, a complete report of all the engineering and technical papers. There will be news accounts and pictures of the personalities engaging in the twenty-eighth annual meeting of the oil industry's largest trade association. The 434-page number also will have a total of 28 A.P.I. articles dealing with drilling, production, transportation, refining, and marketing operations.

With 11 Oil and Gas Journal staff representatives "on the spot" covering this A.P.I.-Chicago meeting, this edition will bring to Journal readers everywhere a full report of the sessions.

Operation Saltwater



To produce oil a mile offshore demands ingenuity, hard work, perseverance, and the best of high grade equipment as well. Every length of Youngstown Oil Country Tubular Goods is made to meet the extreme in service conditions--Operation Saltwater.

QUALITY YOUNGSTOWN SERVICE

Youngstown

OIL COUNTRY TUBULAR GOODS

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices — Youngstown 1, Ohio

Export Office - 500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS - SHEETS - PLATES - WIRE - TIE PLATES AND SPIKES - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - PIPE AND TUBULAR PRODUCTS - CONDUIT - BARS - RODS.

Hot Stuff...

BUT HYCAR KEEPS COOL ABOUT IT

IT'S hot enough to bake a pie at the bottom of a two-mile well. Under the Kobe Free Pumping system, one man can seat a pump *by oil pressure* and surface it by the same means—no pulling or running needed.

You have 80 pounds of metal going through a small bore assisted by packing elements that must stand extensive abrasion in circulating in and out of the well. As the Free Pump reaches its seating shoe, one of the elements, an "O" Ring, must wipe abrasives off a *special* sealing face and a split second later effect a perfect fluid seal against pressures up to 4000 pounds per square inch. It does this at bottom hole temperatures—up to 275°F—for periods from 3 to 18 months!

The manufacturer, Kobe, Inc., tried out several packing materials that would operate the pump under these "tough" conditions. He finally chose Hycar American Rubber because it would meet *all* the demands made upon it. In doing so he revealed the amazing characteristics of this modern industrial product.

Hycar American Rubber can withstand both abrasion and high temperatures . . . it can combine great strength and firmness with remarkable elasticity . . . it will give long service as demonstrated by the fact that no "free pump" has ever had to be pulled because of packing failure! Which will lead many to ask, "Can Hycar help me too?" Most times it can!

We make no finished products from Hycar but we are always glad to supply information and give help on special problems. Write B. F. Goodrich Chemical Company, Dept. HG-12, Rose Building, Cleveland 15, Ohio.

The Kobe Free Pump manufactured by Kobe, Inc., Huntington Park, Calif.

Hycar
Reg. U. S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

PERSONALS

Humble Names Barrow Chairman of the Board

L. T. BARROW, a director and vice president of Humble Oil & Refining Co., has been elected chairman of the board of directors, it was announced last week by Hines H. Baker, president and chief executive officer of the company. Barrow succeeds the late Harry C. Wiess.

A native of Texas, Barrow was educated in the public schools of Austin. His studies at the University of Texas were interrupted by the first World War when he served in the Air Corps from October 1917 to March 1919. Upon his return to the University of Texas he specialized in geology and received his bachelor of arts degree in 1921 and his master's degree in 1923. He was elected to an honorary geologic fraternity and served as an instructor of geology at the university for 2 years before joining Humble in 1924.

Immediately after joining the company Barrow was assigned to organize Humble's geologic work in the San Antonio division. He was appointed chief geologist for the company in 1929 and transferred to the home office in Houston. He occupied this position until February 1937 at which time he was elected to the board of directors to have supervision over Humble's far-reaching geological, land and lease operations throughout Texas and in New Mexico and Louisiana. The following year Barrow was made a vice president of Humble.

J. J. McClelland, formerly of Owensboro, Ky., has been named production manager of the recently established district production office in Columbus, Ohio, for Ohio Oil Co. The district will embrace a part of the Terre Haute (Ind.) production division and cover oil and gas operations in Ohio, eastern Kentucky, eastern Tennessee, West Virginia, Virginia, and Pennsylvania. **H. G. Walter,** district geologist at Tallahassee, Fla., will be given a similar post at Columbus.

Joe E. Keyser, geologist, will be in charge of Woodley Petroleum Co.'s district office which is to be reestablished at Midland, Tex. Keyser was formerly with Ohio Oil Co. at Wichita Falls.

R. C. Byars, personnel and industrial relations manager of the Midland exploration and production area for Shell Oil Co., Inc., has been named administrative assistant to the manager of the Midland exploration and production area. He was succeeded by **A. H. Vineyard.** Other promotions of Shell personnel include: **A. S. Gilles,** industrial relations representative in the company's head office, to personnel and industrial relations manager of the Tulsa exploration and production area; **W. F. Schoenthaler,** assistant manager of supplies in the company's head office transportation and supplies department, to manager of the distribution department in the head office of Shell Chemical Corp., New York; **H. P. Ingersoll,** superintendent of the North Products Pipe Line, to superintendent of the Massachusetts Products Pipe Line and the Plantation Pipe Line terminals, with headquarters in Waltham, Mass.; **V. K. Leonard,** division engineer for North Products Pipe Line, has been appointed acting superintendent to succeed Ingersoll; **D. G. Ward,** assistant manager traffic department at San Francisco, to New York as assistant manager of traffic in the head office of transportation and supplies department.

Dr. Ernest F. Fiock, a leading authority in the field of combustion, has been appointed chief of the newly organized combustion section of the National Bureau of Standards. He joined the staff of the National Bureau of Standards in 1926. In his new capacity, Dr. Fiock will direct investigations in the determinations of burning velocities, flame temperatures, burner performance, and methods and instrumentation applicable to the handling and metering of fuels to the measurment of the temperatures of streaming gases.

Rex V. Phelps and **Sam I. Hulse** have been elected directors of Warren Maritime Corp., wholly-owned subsidiary of Warren Petroleum Corp.

Vladimir A. Kalichevsky, consulting chemical engineer for Magnolia Petroleum Co., Beaumont, Tex., has been nominated to the presidency elect of the American Chemical Society — one of the nation's highest scientific posts. He received his bachelor's degree from the California Institute of Technology in 1924. The following 5 years he was research chemist with Union Oil Co. of California, and from 1929 to 1931 with Standard Oil Development Co. He joined Socony-Vacuum Oil Co., Inc., in 1931. He assumed his present position of consulting chemical engineer for Magnolia in 1944. For nearly 10 years Kalichevsky participated in the publication of one of the A.C.S.'s major publishing enterprises, and from time to time has served on the society's national committees.

Carroll D. Fentress, for the past 2 years petroleum technologist and special assistant in the Oil and Gas Division, Department of Interior, has been made director of refining. Fentress, who was assigned, as a major in the Army, to the Petroleum Administration for War where he had charge of construction and operation of 25 Government-owned aviation-gasoline plants, joined the OGD when it was set up in August 1946.

Thomas F. Laurie has been appointed chairman of the Irish-American Oil Co. Laurie helped form the Irish-American company and has previously served it as secretary and as director. He has also served with Anglo-American Oil Co. in London and with International Association (Petroleum Industry), Ltd.

Eugene J. Houdry, Houdry Process Corp., pioneer in catalytic cracking, has received a Potts Medal award from Franklin Institute "in consideration of his leadership in the development of the important process of catalytic cracking petroleum utilizing known basic chemical and physical facts."

Carl Todd has been made chief geologist in charge of Bishop Oil Co.'s Mid-Continent area. Todd who has been with Bishop for 10 years will

PERSONALS

make his headquarters in Wichita, Kans., For the past 7 years he has been geologist in charge of the Kansas division. **Earl Moore,** with Bishop Oil Co. for 14 years, has been appointed superintendent in charge of Bishop's drilling in the Mid-Continent area. Until this appointment, Moore has been drilling superintendent in the Oklahoma division. He will make his headquarters in Ada, Okla.

Dahl M. Duff, district editor, Houston, The Oil and Gas Journal, has been transferred to New York City to replace **Warren W. Burns,** district editor there, who has resigned to join the public relations staff of California Commercial Co., a subsidiary of Standard Oil Co. of California.

F. W. Vaughan, manager of the aviation department of the General Petroleum Corp., Los Angeles, Calif., has been appointed a member of the American Petroleum Institute's aviation technical service committee. Vaughan succeeds **W. D. Ellison** for the balance of 1948.

Robert A. Cunningham, senior mechanical engineering student at Rice Institute, has received the annual scholarship award of the Houston Chapter of the American Petroleum Institute. **T. J. Fuson,** Humble Oil & Refining Co., chairman of the Houston chapter, presented the award at a meeting last week. **L. B. Ryan,** Rice Institute professor, headed the scholarship committee which made its selection on the basis of scholarship, character, leadership, and ability.

Mark H. Plummer, formerly assistant to the division manager of Pure Oil Co.'s Gulf Coast production division, has been named manager of Pure Oil's Illinois producing division, replacing **C. O. Clarke** who recently retired after 23 years' service with the company. Plummer joined Pure Oil in 1923 as a lease purchaser. He later became land agent, and served in the land department until his appointment to the division management staff in Houston.

B. E. Ault, formerly with Loffland Brothers, has gone to Venezuela as tool pusher for Atlantic Refining Co.

James Roy Maxey has joined Deep Rock Oil Corp. as superintendent of geophysics. His oil industry background includes employment with Humble Oil & Refining Co., Carter Oil Co., Sohio Oil Co., United Geophysical Co., and Wichita Exploration Co. Besides having experience in all major domestic oil fields Maxey has also done work in South America and Europe. He received his master's degree in geology from the University of Oklahoma in 1932.

John V. Melton has resigned from Atlantic Refining Co. where he served for 19 years in the Oklahoma-Kansas group of the land department, to become land man, Oklahoma division, British American Oil Producing Co., with offices at Oklahoma City, Okla.

H. W. DODGE

H. William Dodge, formerly vice president and sales manager, The Texas Co., and now chairman of the board of Air Products, Inc., has been appointed chief of the petroleum section in the Paris office of Special Representative **W. Averell Harriman,** it has been announced by the Economic Cooperation Administration. Dodge, who served during the war with the War Production Board and Petroleum Administration for War, was with The Texas Co. from 1903 to 1945, rising from office boy to vice president and general sales manager.

C. W. Faris and **J. E. Warren** have set up the firm of Faris & Warren in Midland, Tex., to do consulting engineering for the petroleum industry. Faris recently resigned from Shell Oil Co., Inc., after more than 12 years' service. Warren is operating partner in the Carl B. King Drilling Co. and in King, Warren & Dye, oil development and production company.

Fred C. Beleau has been named division drilling superintendent at Casper, Wyo., for Stanolind Oil & Gas Co. Beleau has been with Stanolind since 1933. In 1935 he was made a Stanolind field superintendent in the Texas-Louisiana Gulf Coast division. In 1941, he became a district superintendent in the Gulf Coast division in which capacity he served until this present appointment.

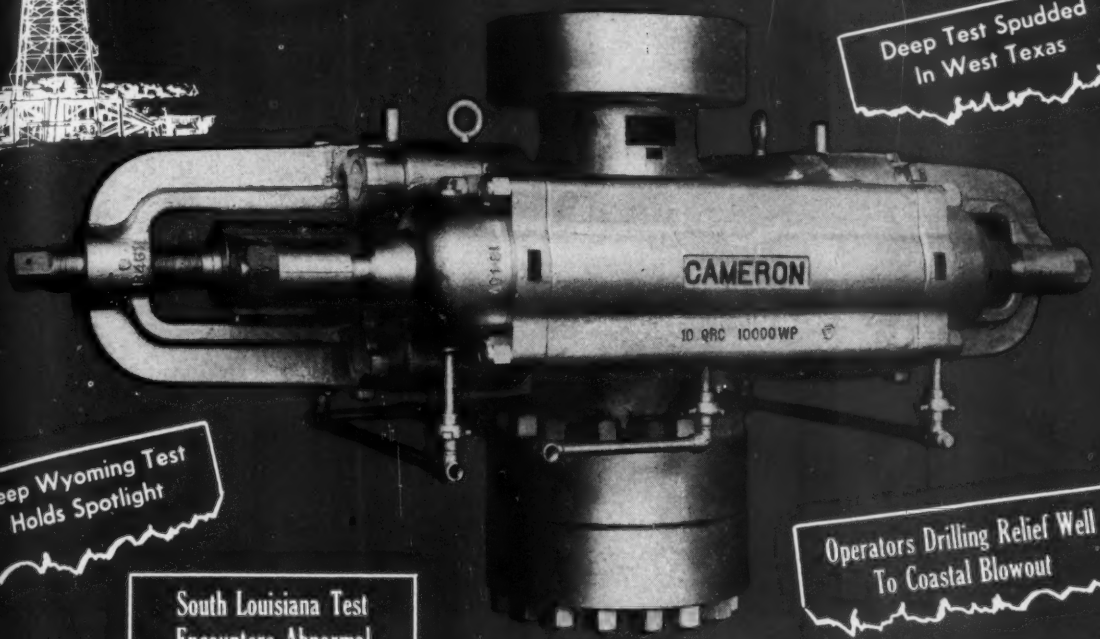
James Terry Duce, vice president of Arabian American Oil Co., was a guest speaker at the New York Nomads dinner November 1. Duce spoke off-the-record about his company's Saudi Arabian activities. **H. O. Thompson,** Aramco's vice president, in charge of public relations, and his staff also attended the Nomad meeting.

Dr. Charles E. Moser, supervisor, fuels development research, research laboratories, The Texas Co., Beacon, N. Y., has been elected chairman of the Mid-Hudson section of the American Chemical Society, succeeding **Ernest A. Rodman,** E. I. du Pont de Nemours & Co. Other section officers chosen were **George B. Hatch,** The Texas Co., chairman elect; and **J. W.**

Foreign guests at the October 13 meeting of the Los Angeles chapter of Nomads were: front row: Florent H. Bailly, guest speaker; Gilberto Capriles, consul of Venezuela; T. C. B. Vandenberg, American Overseas Petroleum Co.; and O. M. Hulsey, Shell Oil Co., Jr. Back row: C. D. Hendershott, Bahrein Petroleum Co., Ltd.; B. R. Wall, Iraq Petroleum Co.; Roy J. Tribbey, Jr., Socony-Vacuum Oil Co., Inc.; G. H. Atkins, Creole Petroleum Corp.; and James R. Gregath, Western Gulf Oil Corp.

IT'S READY NOW

FOR YOUR NEXT DEEP WELL . . .



Deep Test Spudded In West Texas

Deep Wyoming Test Holds Spotlight

South Louisiana Test Encounters Abnormal Pressure

Deep Wildcat Blows Out

Operators Drilling Relief Well To Coastal Blowout

THE NEW CAMERON

10,000 LB. W. P.

QRC BLOWOUT PREVENTER

Since deep drilling . . . 10,000' and below . . . has become commonplace, operators have wisely stepped up the strength of their equipment to safeguard against unexpected conditions in these unexplored regions.

Alert to the eventual need for higher pressure blowout preventers, Cameron has ready now the first blowout preventer designed on a par with other stronger, higher pressure equipment for deep drilling.

With the huge investment in drilling machinery on modern deep wells . . . to say nothing of the substantial investment in well bore alone . . . there is more than ample justification to provide your deep wells with this super-safe blowout preventer . . . the best high pressure protection money can buy.

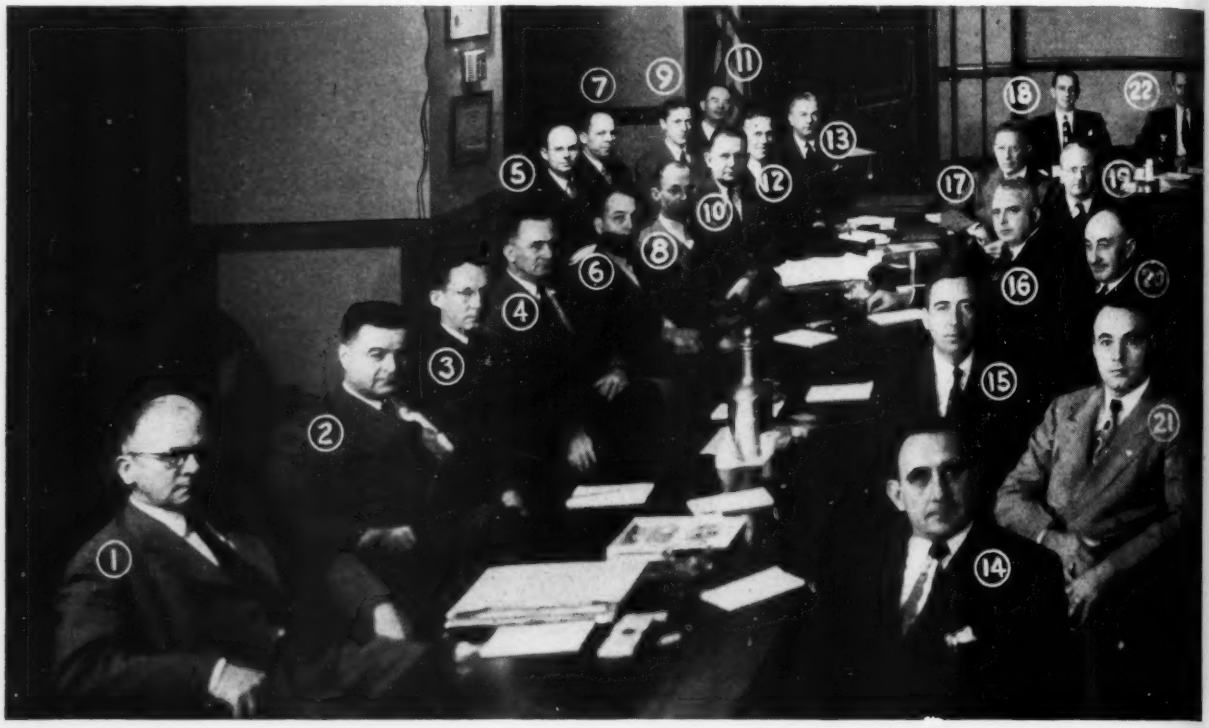
Today, and in the future, this new Cameron 10,000 lbs. working pressure Type "QRC" Blowout Preventer is destined to save many a deep, costly well bore. It's ready now to protect your next deep well investment. Write for complete mechanical details and specifications.

Cameron

IRON WORKS, INC.

P. O. BOX 1212, HOUSTON, TEXAS

Export: 25 Trinity Place, New York 6, N. Y. Cameron, 310 Thompson Bldg., Tulsa (Telephone 2-2791), California: Long Beach (P. O. Box 58), Wyoming: 326 N. Poplar St., Casper, North Louisiana: Bossier City (P. O. Box 425), Texas: Midland (Telephone 1982), Corpus Christi (Telephone 2-7761), Ft. Worth (Telephone 4-8822).



Texaco Refinery Executives Meet in New York

REFINING superintendents, The Texas Co., from all parts of the United States, attending a meeting of the Operating Committee at the company's New York offices during the week of October 4, are: 1—S. W. Johnson, superintendent, Amarillo, Tex.; 2—L. V. Dorsch, assistant superintendent, Amarillo; 3—A. E. Higgs, superintendent, San Antonio, Tex.; 4—F. W. Lawton, engineer, New York; 5—P. Beall, Jr., power engineer, Sunburst, Mont.; 6—F. M. Leverett, power engineer, Port Arthur, Tex.; 7—E. L. Stephens, engineer, New York.

8—H. Flynn, Port Arthur; 9—A. C. Weller, engineer, New York; 10—F. H. Holmes, general superintendent, Port Arthur; 11—J. H. Gleckler, New York; 12—F. L. Wallace, works manager, Port Arthur; 13—W. B. Logan, assistant manager, operations, New York; 14—E. O. Dunaway, assistant department agent, Houston.

15—D. E. Alexander, power engineer, Amarillo; 16—A. Q. Farquharson, manager, refining department, McColl Frontenac Oil Co., Ltd., Montreal, Canada; 17—H. S. McCray, superintendent, Lawrenceville, Ill.; 18—J. S. Worden, manager, operations, New York; 19—Ray Powell, supervisor proecessing, New York; 20—E. J. Scheibe, superintendent, Sunburst; 21—C. E. Letscher, power engineer, Lawrenceville.

22—G. R. Bryant, general manager, New York; 23—E. C. Hosbach, power

Hodge. The Texas Co., secretary-treasurer. **Edward C. Greco,** chief research chemist, United Gas Pipe Line Co., Shreveport, La., was elected chairman of the Ark.-La.-Tex. section, succeeding **Harry J. Sheard,** Bayou State Oil Corp., and **Dr. J. W. Bertetti,** chief engineer, Root Petroleum Co., El Dorado, Ark., and **Harden T. Griffin,** chief chemist, United Gas Pipe Line Co., were chosen vice chairman and secretary-treasurer, respectively. Sheard and **E. E. Cofer,** chemical division, Lion Oil Co., were chosen section directors. Section representative on the national council of the society is **Guy S. Mitchell,** chief chemist, Lion Oil Co.

DEATHS

Green Prescott, 69, retired tax agent, Pure Oil Co., died October 28 in Fort Worth, Tex. Prescott served Pure for 23 years and prior to his retirement early this year, received the distinguished service award of the annual advalorem tax forum of the Mid-Continent Oil and Gas Association.

Theodore Bowler, 39, head of Sun Oil Co.'s land and legal division in Michigan, died October 28 in Ann Arbor, Mich. Only a few hours before his death he had been elected president of the Oil and Gas Association of Michigan.

R. G. Rapp, president of Denver Producing & Refining Co., Oklahoma City, and **L. S. Tunks,** production superintendent for the company, were killed recently in an airplane accident near Matador, Tex.

Joseph Hartman, 80, retired president of Imperial Oil & Gas Products Co., Pittsburgh, Pa., died October 25 in Pittsburgh. He had operated in Pennsylvania, West Virginia, Ohio, Oklahoma, Arkansas, and Louisiana.

engineer, Lockport, Ill.; 24—R. J. Weinaug, supervisor, refinery production, New York; 25—W. E. Kuhn, manager, technical and research division, New York; 26—W. R. Nichols, supervisor, supplies and distribution, New York; 27—R. R. Dimock, power engineer, Casper, Wyo.

28—C. E. Cummings, superintendent, Beacon Research Laboratories, Beacon, N. Y.; 29—J. T. Yardley, Jr., power engineer, Port Neches, Tex.; 30—D. C. Lawrence, power engineer, New York; 31—E. L. Cargill, power engineer, Tulsa; 32—J. M. Thompson, assistant to vice president, Houston; 33—T. A. Mangelsdorf, superintendent, Lockport; 34—R. Amundsen, assistant to general manager, New York; 35—P. Beall, Sr., superintendent, Casper.

36—D. W. Carswell, chief engineer, New York; 37—R. G. Collins, superintendent, Dallas; 38—A. M. Martin, superintendent, Eagle Point, N. J.; 39—P. N. Hunt, power engineer, Eagle Point; 40—J. T. Yardley, Sr., division manager, case and package division, Port Arthur; 41—R. C. Schorlemmer, superintendent, Port Neches; 42—L. C. Kemp, Jr., director of research, New York; 43—F. C. Jones, department agent, Houston.

44—J. T. Froehlich, general superintendent, terminal division, New York; 45—E. M. Reynolds, superintendent, Tulsa; 46—L. E. Priester, electrical engineer, New York; 47—R. V. Logsdon, New York.

In 1908 he founded the company from which he recently retired as president.

Gentry Worley, 60, Dallas, Tex., assistant division manager, the sales department, The Texas Co., died October 25 in Dallas.

M. S. Hughes, 72, pioneer Oklahoma oil operator, died October 31 in Bristow, Okla. Hughes was an early-day oil operator in the Drumright pool in 1912.

Conner Tucker, 56, Phoenix, Ariz., president of Arizona Oil Co., died October 27 in Los Angeles, Calif.

William L. L. McVay, prominent oil operator of Bradford, Pa., died October 28 in Bradford.

William Dawes, 60, foreman of the electrical department of the Bayway refinery of Esso Standard Oil Co. in Linden, N. J., died October 24 in Elizabeth, N. J.

John Downing, 53, vice president and director of Standard Oil Co. (Kentucky), died October 24 in Columbus, Ohio.

H. K. Browning, 46, who only recently was promoted from general sales manager of Kobe, Inc., to a vice president of the company, died October 26 in Alhambra, Calif.

Albert L. Pashek, 63, former chief lubricating engineer for the Ohio industrial department of Socony-Vacuum Oil Co., Inc., died October 26 in Cleveland, Ohio.

W. Scofield, 75, retired oil producer of Pleasantville, Pa., for the past 40 years, died October 28 in Pleasantville.

R. D. Winder, field inspector for the Texas Railroad Commission, died October 23 in Kilgore, Tex.

Alvin M. Sutton, 69, pioneer oil operator who had properties in Texas, Arkansas, and Mississippi, died October 25 in Tyler, Tex.

H. V. Blaxter, 66, attorney and financier of Pittsburgh, Pa., and a director of Bareco Oil Co., Tulsa, died recently in Pittsburgh.

Carl J. Baer, Mansfield division manager, Standard Oil Co. (Ohio), died October 9 in Mansfield, Ohio

Sulfur in PETROLEUM

A.P.I., U. S. Bureau of Mines, and Northwestern University Will Start New Fundamental Studies

by Kenneth B. Barnes

1—First step in preparation of a sulfur compound is studying the literature concerning that compound. For this purpose the Bureau of Mines has compiled comprehensive card files of information. Here, J. S. Ball and W. E. Haines discuss some of the data from one of the card file systems at the Laramie, Wyo., Petroleum Experiment Station

OF interest and importance to the petroleum industry is the agreement just effected among the American Petroleum Institute, the U. S. Bureau of Mines, and Northwestern University, to conduct fundamental studies of sulfur compounds in petroleum. These developments have been designed A.P.I. Projects 48A and 48B.

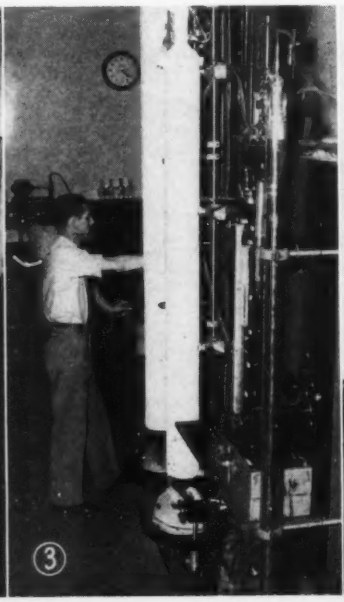
There are four phases to the work to be performed by the research and laboratory organizations: (1) Large-scale synthesis and purification of sulfur compounds and determination of common physical and chemical properties; (2) determination of thermodynamic properties; (3) separation and identification of sulfur compounds in petroleum distillates; (4) exploratory synthesis and chemical reactions of sulfur compounds.

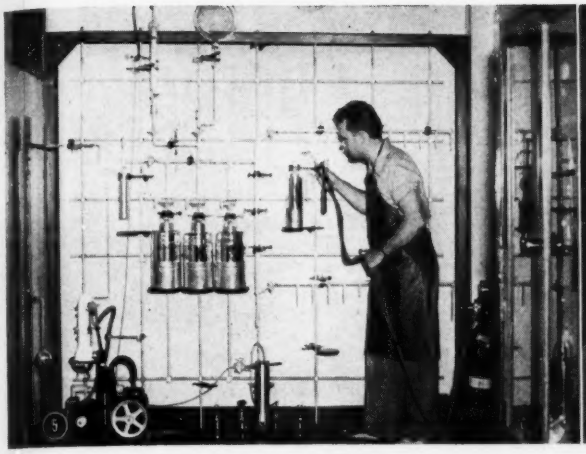
The first phase or program will be done at the petroleum and oil-shale

2—United States Bureau of Mines Petroleum Experiment Station, Bartlesville, Okla.—Dr. D. W. Scott using apparatus for the precise determination of the vapor pressure of sulfur compounds

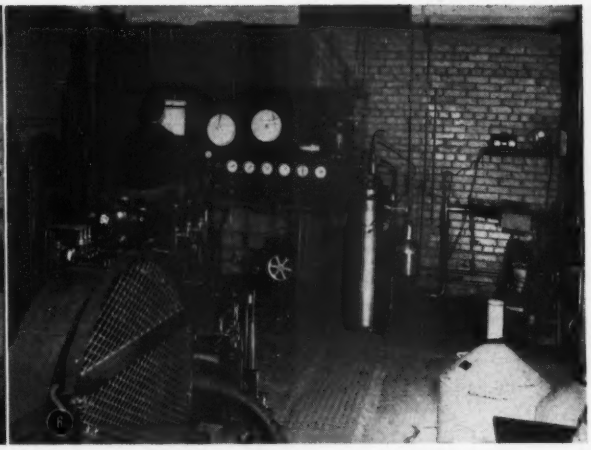
3—U.S.B.M., Laramie, Wyo.—For purification of sulfur compounds, efficient distillation is essential. C. J. Thompson operates a special fractionating column for this purpose

4—Determination of purity of sulfur compounds is another very important step. The freezing-point method is used. W. E. Haines is shown making purity tests of sulfur compounds in the U.S.B.M. Laramie laboratories



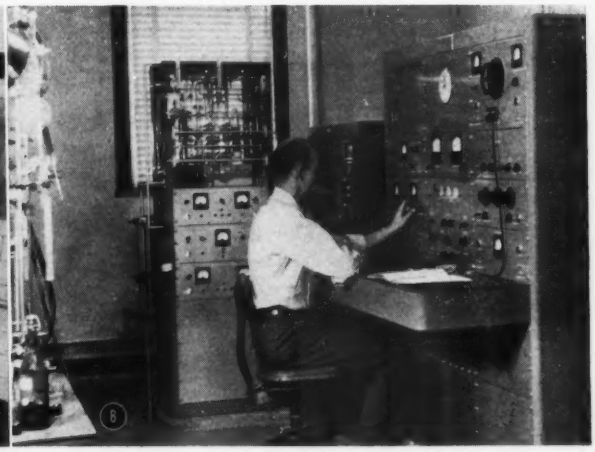


5—Compounds are bottled under vacuum in ampoules for shipment to other laboratories and to the Bureau of Standards for distribution as standard samples. In this picture taken at Laramie, R. V. Helm is sealing off one of the ampoules



6—Liquid hydrogen is used for low-temperature thermodynamic research on sulfur compounds. Dr. H. M. Huffman is observing a recorder on the hydrogen liquefier and supplemental equipment at the Bartlesville Bureau of Mines Station

7—Apparatus for determining the heat of combustion of sulfur compounds at the U.S.B.M. Petroleum Experiment Station, Bartlesville



8—Consolidated mass spectrometer used by C. W. Bailey to trace purification operations, and to indicate whether improvement is being made

9—The infrared spectrometer also provides one means for checking efficiency of purification processes. G. L. Cook is operating the Perkin-Elmer infrared spectrometer at Laramie. Same equipment is installed at Bartlesville

10—Northwestern University—Dr. F. G. Bordwell and Martin Knell discussing the exploratory syntheses and chemical reactions of sulfur compounds, the part of A.P.I. Project 48 assigned to Northwestern

experiment station of the Bureau of Miles at Laramie, Wyo., under the supervision of J. S. Ball. The next two phases will be carried on at the petroleum experiment station at Bartlesville, Okla., under the supervision of H. M. Huffman and H. M. Smith, respectively. The fourth part will be at Northwestern University, Evanston, Ill., supervised by F. G. Bordwell.

Project 48A covering the first three phases will represent an extension of current Bureau of Mines work on sulfur compounds. The bureau laboratories are well equipped with the needed specialized equipment and trained personnel for this research.

Both projects 48A and 48B are under the direction of an advisory committee consisting of W. D. Seyfried, Humble Oil & Refining Co., Baytown, Tex., (chairman); F. E. Frey, Phillips Petroleum Co., Bartlesville; D. A. Howes, Anglo-Iranian Oil Co., New York City (in charge of Anglo-Iranian technical work in the United States); and M. E. Spaght, Shell Oil Co., Inc.

The studies of physical properties to be determined at Laramie include freezing point, refractive indices at various temperatures and wave lengths, density at various temperatures, viscosity at various temperatures, surface tension, and infrared, ultraviolet, and mass spectra. The thermodynamic work by the bureau, at Bartlesville, is divided into five parts: entropy, vapor pressure (Antoine equation), heat of combustion, heat of vaporization, vapor heat capacity.

Seven crude oils have been chosen for initial work in the survey of types of high-sulfur crude oils. The crude oils will come from these fields: Wilmington (California), Rangely (Colorado), Oregon Basin (Wyoming), Wasson (West Texas), Heidelberg (Mississippi), Hawkins (East Texas), Deep River (Michigan). These crudes represent major production from various formations in different areas.

As indicated above, the U. S. Bureau of Mines has long been actively engaged in various technical aspects of sulfur compounds in petroleum. Results of one of the most recent extensive studies by the U.S.B.M. were given at the A.P.I. annual meeting at Chicago a year ago, in the paper, "Trends in Supply of High-Sulfur Crude Oils in the United States" by H. M. Smith and O. C. Blade *(see The Oil and Gas Journal issue of November 29, 1947, page 73, et seq.)*. Included in that paper (and in the Journal publication thereof) is a map and tabulation of all United States oil fields with daily production exceeding 2,500 bbl. per day, wherein the sulfur content percentage is given for each, together with the daily production of the field. By this presentation it is possible to see at once the distribution of sulfur contents for all important U. S. oil fields.

The Story of the

COMPOSITION of PETROLEUM

AN interesting map-type presentation of sulfur compounds in petroleum, and the different hydrocarbon groups generally recently was originated and drawn by Harold M. Smith of the U. S. Bureau of Mines.

The map starts with the carbon atom (termed the "Carbon Peak"), surrounded by a stratosphere of hydrocarbon. Outward and evenly spaced by 100's from the center are concentric rings or isotherms (in °C.) from the hydrocarbon stratosphere to a limit of 600° C. The map also is divided into four quadrants or pie-shaped areas in which are plotted, at their proper boiling points, the hydrocarbons and sulfur compounds present in crude oils.

One quadrant area is for the alkanes. The second and third areas are for the naphthenes and the aromatics. Finally, and of interest in connection with Projects 48A and 48B discussed here, the fourth quadrant area is for the sulfur compounds along with oxygen and nitrogen compounds. Identified pure compounds in petroleum are shown by solid circles or solid squares for the normal compounds. A few of the other compounds that may be present are shown by open circles.

Alkane quadrant.—Consists of straight-chain compounds, progressively increasing in size by a CH_2 increment, and of isomers of each of these with various sizes and numbers of side chains. Most of the alkanes through the octanes have been identified in petroleum. Higher, however, except for the n-alkanes, only a few of the many possible isomers have been positively identified.

Virtually nothing is known of the higher-boiling isoalkanes. On the map, therefore, the alkanes can be illustrated as a single large "river" with many tributaries. This river empties into the "Alkane Sea" through the "wax delta" at the mouth of the river, and eventually into the "Petroleum Ocean."

Aromatic quadrant.—The situation here differs greatly from the alkanes. On the map, this area is shown to have many rivers, all emptying into the "Aromatic Gulf." The "Benzene River" is the largest and possesses many tributaries among its alkyl derivatives. Other streams, however, are the Napthalene, Anthracene, and Tetrahydronaphthalene "rivers" in the condensed-nuclei "land," and Phenylcyclopentyl, Phenylcyclohexyl, and Diphenyl rivers in the noncondensed multicyclic-ring area.

Harold M. Smith is principal petroleum chemist in charge of the chemistry and refining section at the U. S. Bureau of Mines experiment station, Bartlesville, Okla. Born in Rhode Island, he received his education in Massachusetts and graduated from Clark College in chemistry. He has been with the Bureau of Mines since 1923.

The aromatics in some respects seem to be better known than the alkanes, probably due to their coal-tar ancestry, although even here the frontier of identified compounds stops at the 200° C. isotherm except for isolated cases. Offshore "islands" of asphalt are shown adjoining resin "dunes" on the "main shore" all along the aromatic quadrant. This indicates the essentially aromatic character of the resins and asphalt.

Naphthenic quadrant.—Only the cyclopentyl and cyclohexyl types have been found in petroleum, although naphthenes with 3 to more than 30 carbon atoms in the rings are known. The naphthenes thus are represented by two major "rivers," the Cyclopentyl and the Cyclohexyl, both with alkyl tributaries and both emptying into the Cycloalkane "Bay." Only a very few of these naphthenes so far have been identified in crude oil.

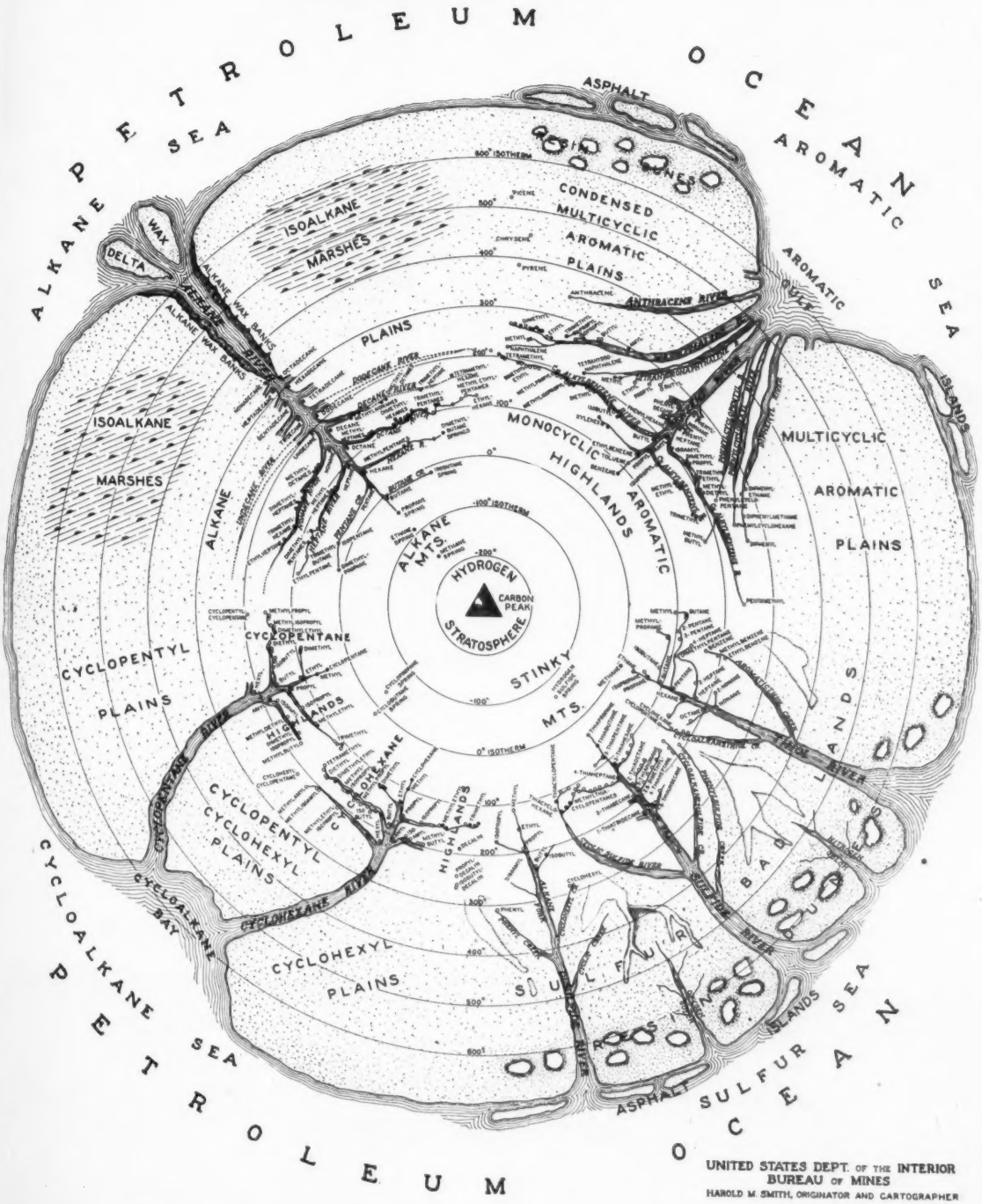
Sulfur quadrant.—In this "Heterogeneous" quadrant the sulfur compounds are of chief interest, with the three major types being the thiols or mercaptans, the sulfides, and the disulfides. The thiophenes are excluded, due to present lack of knowledge of their existence in petroleum prior to processing.

The sulfur groups of compounds are complicated by the fact that all three hydrocarbon types can be represented. Thus, in addition to the main river of alkane thiols there are Aromatic and Cycloalkane Thiol "creeks." Similar situations exist as regards the sulfides and disulfides. In addition are the cyclic compounds in which sulfur is a part of the ring.

Resin dunes along the shore and offshore Asphaltic Islands again are shown to indicate the importance of sulfur, oxygen, and nitrogen in material of these types.

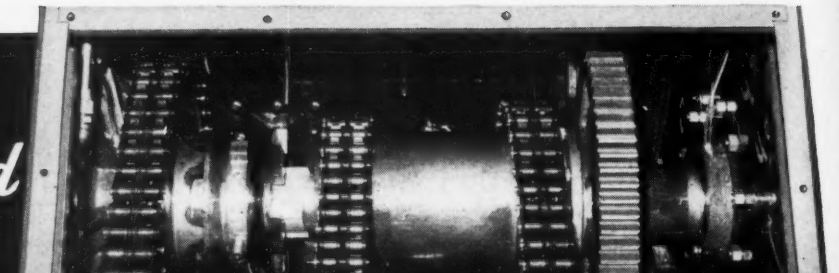
A MAP OF

The Petroleum World



UNITED STATES DEPT. OF THE INTERIOR
BUREAU OF MINES
HAROLD M. SMITH, ORIGINATOR AND CARTOGRAPHER

Compact, Streamlined and Silverlink Roller Chained . .



THREE "FIELD-WISE" FEATURES of the BREWSTER N-7 DRAWWORKS

Brewster built this N-7 drawworks around features they knew operators wanted . . . a compact, streamlined rig with smooth operation and plenty of reserve power.

Then Brewster chained this drawworks completely with Link-Belt Silverlink Roller Chain . . . favorite of manufacturers and operators alike.

Power in the N-7 is delivered through an oil bath compound and 4-speed 500 H.P. transmission giving 8 line speeds . . . all chained with Link-Belt Silverlink Roller Chain.

Great strength, light weight, flexibility and ability to withstand sudden shocks has made Silverlink top performer among roller chains. It's the result of more than 70 years of chain improvements.

LINK-BELT COMPANY

Indianapolis 6, Dallas 1, Houston 2, Los Angeles 33, Kansas City 6, Mo., New York 7, Toronto 8. 11.117

Determination of Cycling Efficiencies in Cotton Valley Field Gas Reservoir

by Ralph L. Hock

IN Cotton Valley field, cycling of the Bodcaw sand has been under way since May 14, 1941. A large number of wells were drilled before cycling was considered, thus there are more wells than would normally be required for operating a cycling project. After the cycling started, though advantage was taken of this in checking the actual displacement efficiencies and dry-gas sweeping patterns. It is doubtful that any similar opportunity will ever exist elsewhere to check these efficiencies so closely because the expense of drilling wells for such purposes is prohibitive.

Engineering practices at Cotton Valley permit control over the flood pattern and thus help to regulate production so as to sweep out more wet gas than might otherwise be obtained. In addition they reduce the amount of dry gas which would be produced and have to be recycled.

The amount of dry gas produced is determined from the composition of the well's effuent (as "gas-oil ratio," "g.p.m.," or, "gas-liquid hydrocarbon ratio"). Simple field tests generally reflect only the g.p.m. or gas-oil ratio. Costs of many analyses by low-temperature fractional distillation would be economically prohibitive. A means was needed for correlating gas-oil ratio or g.p.m. to actual chemical composition so that practical results showing the per cent of wet gas in a well's effluent could be obtained.

The simplest and most accurate method of determining gas-oil ratios is to use a full-scale separator. Where economically justified, the full-scale method is the most desirable. On the other hand, equipment for small-scale "separation" can easily be set up. This apparatus is for **separation**, not sampling.

Small-scale equipment, designed and assembled by engineers of the Cotton Valley Operators Committee, has provided a method of separating gas from liquid hydrocarbons under controlled conditions of temperature and pressure. Fig. 1 shows a flow diagram of the small-scale equipment used to separate liquid hydrocarbons from gas in the test unit. The first-stage vessel has practically the same pressure on it as the meter loop, the

INTRODUCTION

Cycling.—The process is based upon the behavior of hydrocarbon mixtures in the retrograde condensation—pressure range. If the pressure is decreased on these "wet gases" while in the retrograde (high pressure and temperature) range, a fraction of the hydrocarbons will condense or liquefy. When this condensation takes place there is very little chance of ever recovering more than a small fraction of the liquid. The process of (1) producing the high-pressure gas, (2) reducing the pressure and stripping out the condensate, and (3) then compressing and injecting the "dry" gas back into the same reservoir is known as cycling.

As the injected dry gas sweeps farther out into the reservoir its progress can be noted by testing wells in the line of dry-gas advance. The efficiency with which wet gas is swept out by the dry-gas advance is called "displacement efficiency." This efficiency has been measured very effectively in Cotton Valley field, Webster Parish, Louisiana, where two large gas-condensate reservoirs are being cycled.

In addition, the "pattern efficiency" also has been measured at Cotton Valley. The ratio of the reservoir pore space contained within the dry-gas limits, to the total reservoir pore space at the start of cycling operations is called pattern efficiency

"Performance of Bodcaw Reservoir, Cotton Valley Field Cycling Project: New Methods of Predicting Gas-Condensate Reservoir Performance Under Cycling Operations Compared to Field Data," was presented by Martin G. Miller and Max R. Lents at the spring meeting, A.P.I. in 1946. This paper, summarized from a recent A.I.M.E. presentation, is a continuation of that study, plus late information to bring it up to date.

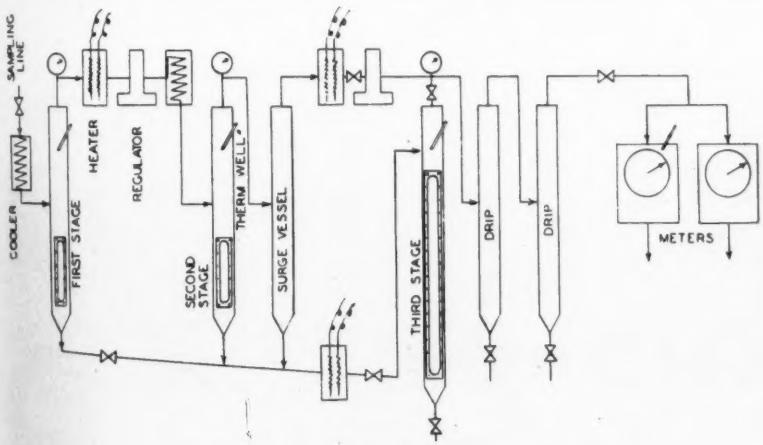
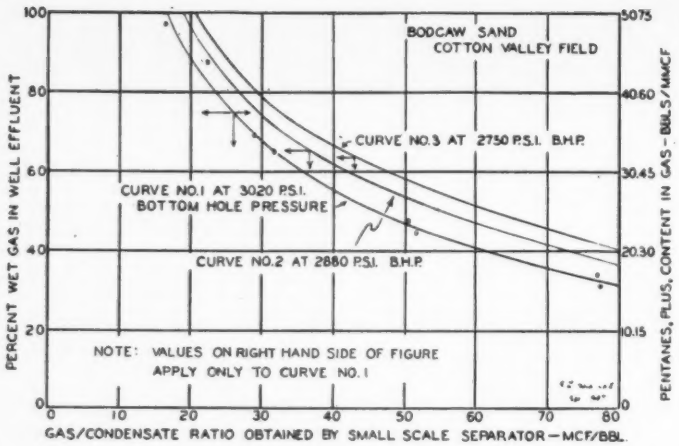
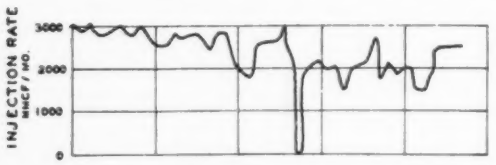
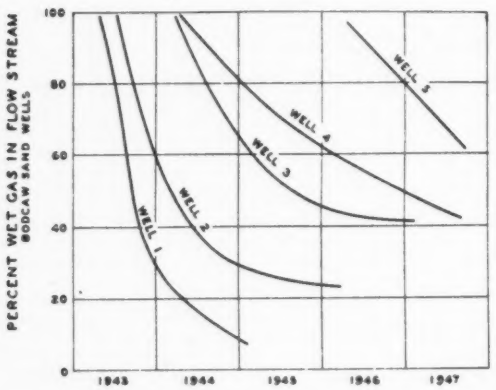


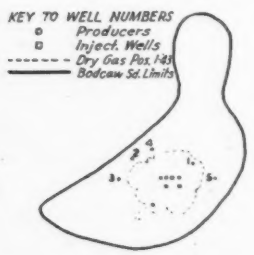
Fig. 1—Flow diagram of gas-testing apparatus

Ralph L. Hock is chief petroleum engineer for the Cotton Valley Operators Committee, Cotton Valley, La. He graduated from University of Oklahoma in 1937 with bachelor of science degree in chemical engineering. He worked for Stanolind Oil & Gas Co. and Edwards Drilling Co. before joining C.V.O.C. in 1940. Hock recently was awarded the professional engineering degree by University of Oklahoma.


BODCAW SAND
COTTON VALLEY FIELD
CURVE NO.3 AT 2750 P.S.I. B.H.P.
CURVE NO.1 AT 3020 P.S.I.
BOTTOM HOLE PRESSURE
CURVE NO.2 AT 2880 P.S.I. B.H.P.
NOTE: VALUES ON RIGHT HAND SIDE OF FIGURE
APPLY ONLY TO CURVE NO.1
PERCENT WET GAS IN WELL EFFLUENT
PENTANES, PLUS, CONTENT IN GAS - BBL.S/MMCF
GAS/CONDENSATE RATIO OBTAINED BY SMALL SCALE SEPARATOR — MCF/BBL.







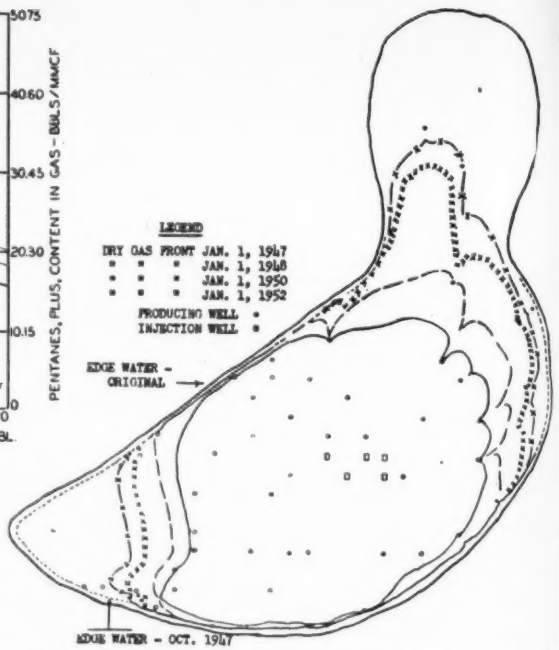
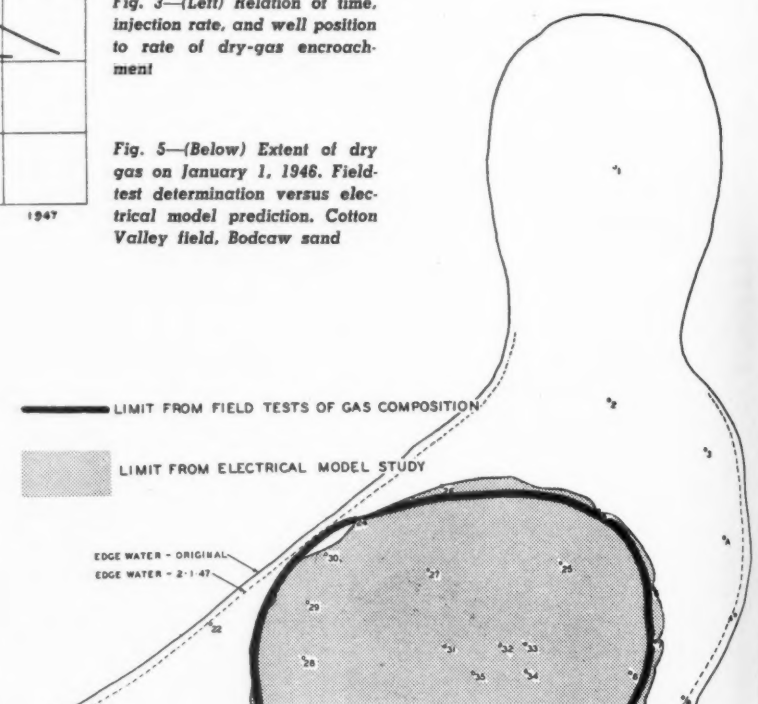


Fig. 2—(Upper left) Correlation between per cent wet gas and ratio obtained by small-scale separator

Fig. 4—(Above) Predicted advance of dry gas, Cotton Valley field, Bodcaw sand

Fig. 3—(Left) Relation of time, injection rate, and well position to rate of dry-gas encroachment

Fig. 5—(Below) Extent of dry gas on January 1, 1946. Field-test determination versus electrical model prediction. Cotton Valley field, Bodcaw sand



difference being that which is necessary to cause the proper sample volume to enter. The temperature is maintained at 90° F. The second-stage vessel is maintained at 800 psi. and 60° F., while the third-stage vessel is held at 20 psi. and as near 60° F. as possible. The quantity of liquid trapped in the third-stage vessel is measured for both water and liquid hydrocarbons at atmospheric pressure.

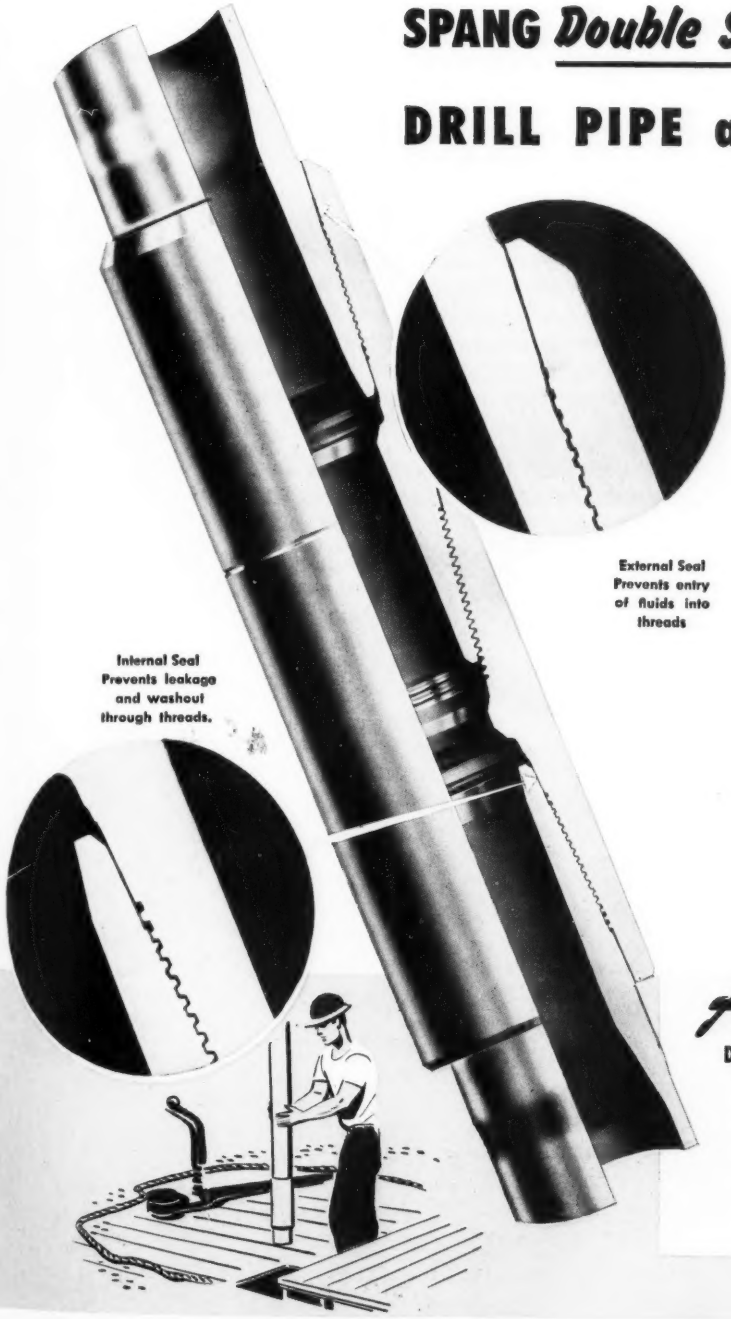
Overhead gas from the third vessel is measured by means of positive-displacement meters operating at atmospheric pressure. Each individual test usually runs for 30 minutes, and

(Continued on page 98)

ANOTHER NATIONAL SUPPLY LEADER

HERE! DOUBLE PROTECTION *with*

SPANG *Double Seal* SHRINK THREAD DRILL PIPE and TOOL JOINTS



Spang Double Seal Shrink Thread Drill Pipe and Tool Joints have an *internal* and *external* seal that give double protection to drill strings.

The *internal seal* prevents tool joint leakage and wash-out through threads. In fact, the seal is so complete that it will remain 100% leak-proof even when subjected to pressure that will cause the pipe to burst.

The *external seal* provides positive protection against the entry of outside fluids into the threads.

Plan now to get the extra protection offered by Spang Double Seal Shrink Thread Drill Pipe and Tool Joints. It means less downtime for repairs and replacements . . . more time to make hole.

Write for fully illustrated bulletin, "Spang Double Seal Shrink Thread Drill Pipe and Tool Joints." It lists in detail all the advantages of this Spang product. And it's packed with down-to-earth engineering facts that tell how to increase drill pipe and tool joint life.

And **you get these benefits too, with Spang Double Seal Shrink Thread Drill Pipe and Tool Joints**

- *Tool Joints can be replaced right at the rig.
- Galled threads are eliminated.
- Last engaged thread failures are minimized.
- Creepage during drilling is eliminated.

*All you have to do is remove the worn joint, heat a new one and put it on by hand.

SPANG-CHALFANT

DIVISION OF THE NATIONAL SUPPLY COMPANY
GENERAL SALES OFFICE: PITTSBURGH, PA.

DISTRICT SALES OFFICES: ATLANTA; BOSTON; CHICAGO; DENVER; DETROIT; HOUSTON; LOS ANGELES; NEW YORK; PHILADELPHIA; PITTSBURGH; ST. LOUIS; SAN FRANCISCO; TULSA

★ THE INDUSTRY'S MOST COMPLETE LINE OF OIL FIELD EQUIPMENT ★

ANOTHER NATIONAL SUPPLY LEADER

The *LARGEST* POWER

FOR EFFICIENTLY DRILLING TOMORROW'S DEEP WELLS

Here is a new and outstanding development in heavy-duty rotary machinery, designed and built to meet the rigid requirements of deep well drillers. It's Big . . . Powerful . . . Flexible . . . Fast . . . Responsive!

There's new ruggedness and dependability built into every unit of the Type 160 Rig including rotary table . . . draw works . . . sectional drive group . . . and slush pumps. New IDEAL Micromatic drilling controls. New IDEAL integral catheads. New IDEAL Type K62B Brakes. New air control system. Simplified operation—fast—safe—efficient. Three PTDSG-8 Superior Supercharged Dual Fuel Diesels develop over 2,000 hp for drilling and hoisting operations.

A review of all the facts about National's IDEAL Type 160 Rig will convince you it has what it takes to drill tomorrow's deep wells efficiently.

FOR DRILLING ★ THE INDUSTRY'S MOST COMPLETE

RIG in the Industry...

THE NATIONAL SUPPLY COMPANY

GENERAL SALES OFFICE: TOLEDO, OHIO

DIVISION OFFICES: CASPER; FT. WORTH; PITTSBURGH; TULSA; TORRANCE.

EXPORT: NATIONAL SUPPLY EXPORT CORPORATION, 30 ROCKEFELLER PLAZA, NEW YORK, N. Y., U. S. A.; RIVER PLATE HOUSE, 12 SOUTH PLACE, LONDON E. C. 2.

THE NATIONAL SUPPLY COMPANY NSCO

NATIONAL BLUE PRODUCTS

LETE LINE OF OIL FIELD EQUIPMENT ★ FOR PRODUCTION

ANOTHER NATIONAL SUPPLY LEADER

The *LARGEST* POWER SLUSH PUMP in the Industry . . . . . .

(Nominally rated 825 hp input and 700 hydraulic hp output)

Here, for the first time in the drilling industry is a power pump that makes light work of circulating mud to great depths. With the Type E-700, drillers can now obtain adequate mud volume at higher pressures than ever before possible with a power slush pump.

This "work horse" incorporates design and construction features completely new in power pump manufacture. A fully normalized weldment of steel plates and castings gives the power end compactness and unusual strength. Greater horsepower per unit of weight results from this construction. The main frame cover is fabricated from aluminum. Although the pump actually occupies less space per unit of horsepower, its great strength and stamina enable the E-700 to perform dependably under the most severe service.

Special design features provide maximum protection from mud and water . . . from shock . . . from overloads . . . from friction . . . and from abrasive wear. Vital parts are readily accessible.

Write for a copy of Bulletin No. 349 or contact your nearby National Supply Store for complete details.

New IDEAL TYPE E-700

THE NATIONAL SUPPLY COMPANY

GENERAL SALES OFFICE: **TOLEDO, OHIO**

DIVISION OFFICES: CASPER; FT. WORTH; PITTSBURGH; TULSA; TORRANCE.

EXPORT: NATIONAL SUPPLY EXPORT CORPORATION, 30 ROCKEFELLER PLAZA, NEW YORK, N.Y., U.S.A.; RIVER PLATE HOUSE, 12 SOUTH PLACE, LONDON E.C.2.

THE NATIONAL SUPPLY COMPANY NSCO — NATIONAL BLUE PRODUCTS

★ THE INDUSTRY'S MOST COMPLETE LINE OF OIL FIELD EQUIPMENT ★

Lion Oil Catalytically Processes Sour Gas Oil

by

W. Carney*, H. D. Noll† and A. W. Hoge†

THE refinery operations of Lion Oil Co. at El Dorado, Ark., are integrated about operation of its 5,400-bbl.-per-day T.C.C. unit. After the recovery of certain straightrun products from the crudes by conventional means, there is available heavy gas oil and reduced crude for charging stock to the T.C.C. plant. Although the average sulfur content of the reactor charging stock derived from this mixture is about 1.7 weight per cent, such material has been processed successfully in the T.C.C. unit since September 1947.

*Lion Oil Co., El Dorado, Ark. †Houdry Process Corp., New York City.

PROCESSING HIGH-SULFUR IMPORTED CRUDES

The volume of high-sulfur crude oils refined in this country has been increasing rapidly over the past several years. Vast quantities of Venezuelan and Near Eastern crudes are imported at present and the predictions are that over 1 million barrels per day of the latter crudes will be processed in this country within the next few years. These foreign crudes are characterized by high-sulfur content, and in this and other respects are quite similar to the Arkansas crudes produced and refined by Lion Oil Co. at El Dorado, Ark. The following table gives inspections of the crude processed by Lion as well as inspections of typical Near Eastern and Venezuelan crudes:

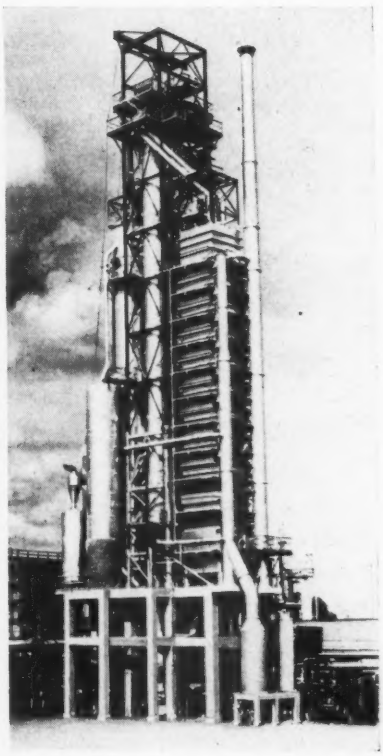
Crude—	Oficina (Venez.)	Bahrein	Iraq	Lion (Schuler)
Gravity, °A.P.I.	31.1	32.7	35.5	34.5
Tbp. distillation, °F.:				
I.b.p.	83	...	...	66
5 per cent	160	112	128	145
10 per cent	220	186	197	210
20 per cent	318	305	293	300
30 per cent	396	402	380	395
40 per cent	480	501	465	485
50 per cent	563	600	547	595
60 per cent	658	700	620	695
70 per cent	791	806	723	785
80 per cent	911	71.2% @ 830	78.4% @ 830	...
Sulfur, weight per cent	0.81	2.04	1.92	1.40
Conradson carbon, weight per cent	...	7.75	3.6	3.1

A typical inspection of the charge to the Lion T.C.C. reactor given below along with inspections of gas oils of similar boiling range derived from Near Eastern and Venezuelan crudes:

Gas oil—	Oficina (Venez.)	Bahrein	Iraq	Lion T.C.C. charge
Yield, volume per cent of crude:	30.0	35.0	32.0	30.0
Gravity, °A.P.I.	24.5	23.0	24.3	25.7
Tbp. distillation, °F.:				
I.b.p.	550	550	570	484
10 per cent	615	620	625	630
20 per cent	655	660	670	670
30 per cent	695	695	705	715
40 per cent	735	725	740	750
50 per cent	775	760	775	785
60 per cent	820	795	815	835
70 per cent	860	850	850	865
80 per cent	890	...	...	910
Aniline point, °F.	175	175	190	165
Sulfur, weight per cent	0.90	2.85	3.1	1.7

As discussed in this article, the Lion T.C.C. unit has been in operation for over a year, charging sour stocks similar to those derived from Middle Eastern and Venezuelan crudes with gratifying results. With a minimum of alloy protection against corrosion, the unit gives evidence of excellent continued performance. A minimum of finishing treatment of the T.C.C. products is required. These data indicate that imported sour crudes could be satisfactorily processed at El Dorado without any further revisions to equipment or processing schemes.

Lion Oil's T.C.C. unit at El Dorado, Ark.



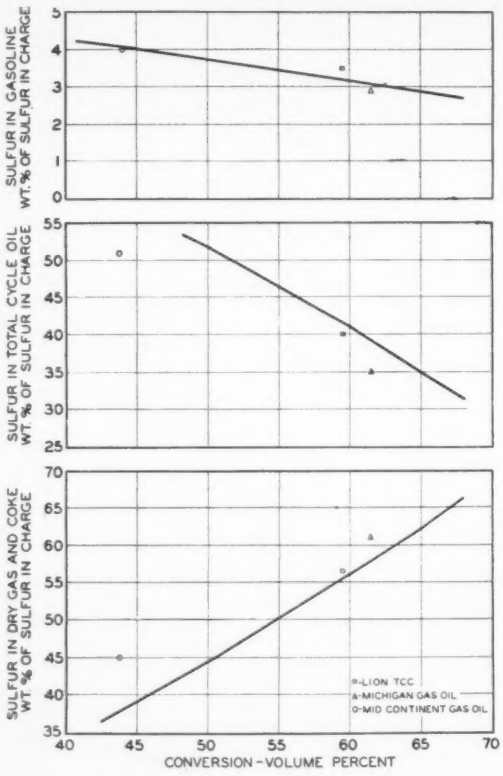

SULFUR IN GASOLINE WT. % OF SULFUR IN CHARGE
SULFUR IN TOTAL CYCLE OIL WT. % OF SULFUR IN CHARGE
SULFUR IN DRY GAS AND COKE WT. % OF SULFUR IN CHARGE
CONVERSION - VOLUME PERCENT
O-LION TCC
Δ-MICHIGAN GAS OIL
O-MID CONTINENT GAS OIL

Fig. 1—Sulfur distribution in T.C.C. cracking

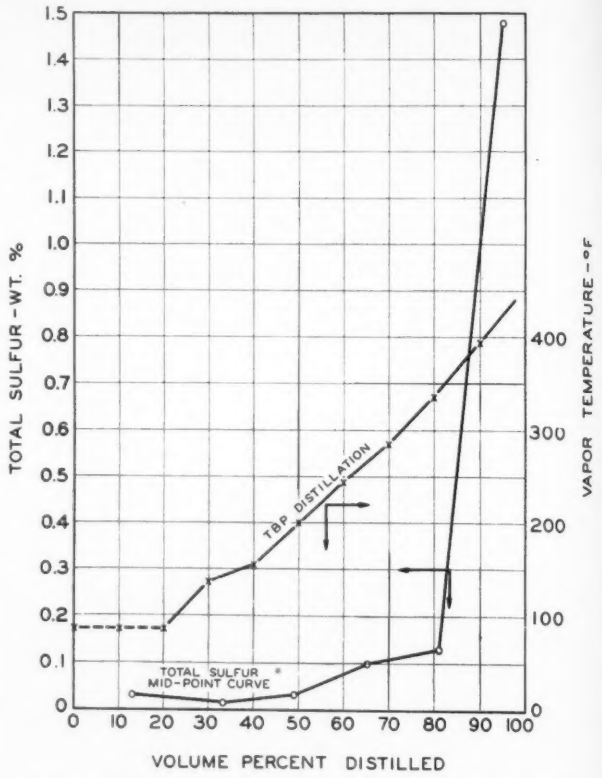


Fig. 2—Total sulfur distribution Lion T.C.C. gasoline before caustic washing

A wide variety of operating conditions have been imposed upon the T.C.C. unit in order to arrive at optimum product distribution in the overall refinery balance of products. Fresh feed throughput, recycle ratio and temperature have been the variables most widely studied. After considerable exploration of the effect of these variables, it was concluded that with the feed stocks available a low-temperature operation with a nominal amount of internal recycling was most desirable at El Dorado.

This type of operation gives an exceptionally high combined yield of 10-lb. R.v.p. motor gasoline and 600° F.-end-point distillate fuel oil of about 70 volume per cent. The gasoline yield is further augmented to the extent of approximately 8.0 volume per cent of the virgin reactor charge by polymerization of the unsaturated portions of the C_3 and C_4 fractions. Typical T.C.C. operating conditions and yields are given in Table 1.

Tests on the products show that despite the low-temperature operation, low-sulfur content of the gasoline from a high-sulfur charge is achieved. For example, after caustic treating in a regenerative system, the stabilized T.C.C. gasoline has an average total sulfur content of about 0.10 weight per cent and is doctor sweet. The stability of both the catalytic gasoline and No. 2 fuel meets all marketing specifications. Inspections of the various T.C.C. product streams after gas recovery and stabilization are shown in Table 2. As indicated, the end point and the pour point of the No. 2 fuel oil produced are approximately 600° F. and 0° F., respectively.

With the current trend in processing stocks of increasing sulfur content in catalytic cracking units in this country, it is of interest to study the distribution of sulfur in the products from such operations. With this in mind, sulfur balances for the Lion operations have been made. Typical of the results are the data presented in Table 3. Also included in Table

TABLE 1—OPERATING CONDITIONS AND YIELDS FOR LION'S T.C.C. UNIT

Charge data:	BPSD
Virgin charge to tar separator	5,838
Recycle charge to tar separator	908
Total tar separator charge	6,746
Tar separator bottoms	1,183
Total reactor charge	5,563
Virgin reactor charge	4,655
Operating conditions:	
Space velocity (total charge), V/hr./V	1.0
Catalyst-oil ratio (total charge), V/V	2.4
Top reactor pressure, psig.	8.0
Oil vapor to reactor, °F.	860
Catalyst to reactor, °F.	1,005
Catalyst circulation rate, tons/hr.	72

Product yields:	BSPD	Lb./hr.	Vol. % virgin reactor chg.	Wt. % virgin reactor chg.
10-lb. R.v.p., 410° F. end point motor gasoline	2,376	....	51.0	....
No. 2 fuel oil	855	....	18.4	....
Heavy catalytic gas oil	855	....	18.4	....
Excess C_4's	602	....	12.9	....
C_4 plus liquid recovery	....	....	100.7	....
C_3 and lighter gas	....	4,390	....	7.2
Coke	....	2,765	....	4.5

GLIDDOL

by Glidden...

Pacemaker in Soya Research

HELPING TO MAKE *better*

LUBE OIL, FUEL OIL, GREASE & GASOLINE

Refiners of lubricating oil find in Gliddol a soybean additive that not only checks oxidation and reduces surface tension, which promotes thorough blending of oil and additives, but one that effectively disperses insoluble solids to give oils a longer life of usefulness and to provide greater protection for motors. In grease, this superior blending agent and inhibitor serves similar ends. In leaded and unleaded gasoline Gliddol acts as a protective colloid to prevent the formation of a precipitate and retards deterioration of the gasoline on exposure to sunlight. Fuel oil treated with Gliddol R shows less precipitate after long heating and has a lighter color than untreated oil.

For further details on the advantages of Gliddol and Gliddol products as they may be related to *your* product . . . consult Glidden, Pacemaker in Soya Research. The complete facilities of our Technical Service Department are always at your disposal.

QUALITY Glidden PRODUCTS

The Glidden Company

SOYA PRODUCTS DIVISION

5165 West Moffat Street

Chicago 39, Illinois

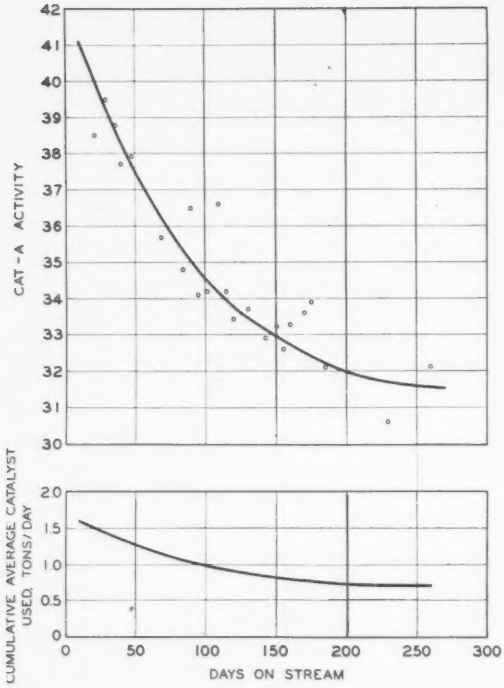


Fig. 3—Bead catalyst performance, Lion T.C.C. unit

3 are typical sulfur balances for T.C.C. operations on moderately sour and sweet charging stocks.

Although a generalized correlation of sulfur distribution in the products versus sulfur content of the charge cannot be made for stocks of widely different chemical composition (the aromatic California crudes are notable exceptions) it is interesting to note that for most paraffinic and mixed-base stocks, about 55 per cent of the total pounds of sulfur in the charge appears in the gas and coke products, about 42 per cent appears in the cycle stock and about 3 per cent appears in the catalytic gasoline.

It should be mentioned that the foregoing generalization regarding sulfur distribution is valid only at normal conversion levels of 55 to 60 per cent, since the quantities of sulfur in the individual products depend upon the relative quantities of those products or, in other words, the conversion level. The change in sulfur distribution with change in conversion in T.C.C. cracking is illustrated by the curves shown in Fig. 1. These graphs were developed from a large number of T.C.C. runs made on a variety of charging stocks and over a considerable range of operating conditions. The data tabulated in Table 3 have been plotted on these generalized curves.

One of the most gratifying experiences in connection with the operation of the Lion T.C.C. unit on sour stocks has been the discovery that a minimum of chemical treatment of the catalytic gasoline is required to produce a noncorrosive, stable, doctor sweet product. It is generally recognized that sour stock operations involve much more elaborate finishing treatment of the products in order to meet marketing specifications.

Prior to the installation of the T.C.C. unit at El Dorado, for example, the thermal gasoline produced from the stocks currently being cracked catalytically had an average total sulfur content of 0.15 weight per cent after regenerative caustic washing and copper chloride sweetening. The T.C.C. gasoline, however, is given only a regenerative caustic wash and inhibited, after which the total sulfur content averages about 0.10 weight per cent and the product is sweet to the doctor test.

The untreated T.C.C. gasoline leaving the stabilizer has a total sulfur content of about 0.15 weight per cent, about one-third of which is mercaptan sulfur. The mercaptan compounds present, however, are removed almost quantitatively by a strong caustic wash so that the finished product meets the specifications quoted above. The distribution of total sulfur versus boiling range of the Lion T.C.C. gasoline before caustic washing is typified by the data plotted in Fig. 2.

TABLE 2—INSPECTION DATA FOR PRODUCTS

	Stabilized gasoline	No. 2 fuel oil	Hvy. catalytic gas oil
Gravity, °A.P.I.	59.3	26.0	16.1
A.S.T.M. distillation, °F.:			
I.b.p.	90	448	613
50 per cent	202	520	702
90 per cent	374	571	760+
End point	408	600	...
R.v.p.	7.3	...	...
Octanes:			
M.M. clear	80.5	...	...
+3 cc. TEL	86.3	...	...
Res. clear	92.0	...	...
+3 cc. TEL	97.2	...	...
Sulfur, weight per cent	0.10	1.45	...
Pour, °F.	...		75
Aniline point, °F.	...	116	...

TABLE 3—SULFUR DISTRIBUTION IN T.C.C. CRACKING

Lion Gas Oil

	Lb./hr.	Wt. % sulfur	Lb./hr. sulfur	Wt. % of total sulfur
Reactor charge	65,800	1.70	1,118	100.0
Products:				
Gasoline	27,600	0.14	39	3.5
Cycle oil	26,832	1.66	446	40.0
Gas + coke	11,368	...	633	56.5
Total	65,800		1,118	100.0

Michigan Gas Oil

	Lb./hr.	Wt. % sulfur	Lb./hr. sulfur	Wt. % of total sulfur
Reactor charge	39,200	0.61	239	100.0
Products:				
Gasoline	15,460	0.046	7	2.9
Cycle oil	15,250	0.55	84	35.1
Gas + coke	8,490	...	148	61.0
Total	39,200		239	100.0

Mid-Continent Gas Oil

	Lb./hr.	Wt. % sulfur	Lb./hr. sulfur	Wt. % of total sulfur
Reactor charge	129,000	0.14	530	100.0
Products:				
Gasoline	41,900	0.049	21	4.0
Cycle oil	73,100	0.37	270	51.0
Gas + coke	14,000	...	239	45.0
Total	129,000		530	100.0

Description of Unit

The Lion T.C.C. unit consists of the conventional heater, tar separator, reactor-kiln, and distillation sections. Among the latest developments incorporated in the design at the time of construction are a single split-bucket type, hot-catalyst elevator for transporting both spent and regenerated catalyst, self-supporting reactor and kiln sections which result in an economy in the steel superstructure required, and a kiln cooling-coil-manifold arrangement at the first platform in the structure which facilitates operation by permitting all coil changes to be made at this location. As far as the catalytic section is concerned, only the reactor proper has alloy protection against corrosion by the sour charging stocks.

(Continued on page 99)

Precision Produced

...from Globe Seamless Steel Tubes to Globe Welding Fittings

Your preference for Globe Welding Fittings is supported by a source of supply with exceptional qualifications. Specialized metallurgical experience and facilities gained in years of steel tubing manufacture enable Globe to produce welding fittings by a precision process that yields a superior product.

Send for the Globe Welding Fittings Catalog.

GLOBE STEEL TUBES CO.
Milwaukee 4, Wisconsin

Producers of Globe seamless stainless steel tubes — Gloweld welded stainless steel tubes — carbon — alloy — seamless steel tubes — Globeiron seamless high purity ingot iron tubes — Globe welding fittings.

GLOBE
PRECISION PROCESS
WELDING FITTINGS

SMITH METER COMPANY *announces the*

SMITH *way*

SERVICE STATION PUMP

MADE IN BOTH HIGH AND LOW MODELS . . . STANDARD OR RETRACTING HOSE TYPES

The Smith Meter Company now extends its services in the realm of petroleum measurement to the Service Station Dispensing Pump. We have purchased the physical assets of the Service Station Pump Division of the Neptune Meter Company. This includes the engineering development and designs of the latest model Neptune Service Station Pumps. Production will be carried on in both Eastern and Western plants.

The Smith Meter Company and its nationwide organization will extend its field service to all models of Neptune Service Station Pumps. Smith will apply the same aggressive engineering research to future pump development that originated and developed the time proven SMITH ROTARY POSITIVE DISPLACEMENT METER – the meter that revolutionized an industry. LOOK TO SMITH FOR LEADERSHIP IN EVERY PHASE OF PETROLEUM METERING.

SMITH METER COMPANY

SUBSIDIARY OF A. O. SMITH CORPORATION
FACTORY—5743 SMITHWAY, LOS ANGELES 22, CALIF.
Sales Offices: NEW YORK, CHICAGO, HOUSTON, LOS ANGELES.
In Canada: TORONTO, VANCOUVER. *International Division,* MILWAUKEE 1, WISC. *Local Agents in All Principal Cities.*

Domestic Refinery Capacity to Total 6.4 Million Barrels Per Day by Early 1949

by R. B. Tuttle

THIRD-QUARTER reports on the refining industry's expansion program indicate some 150,000 bbl. per day of additional crude-oil charging capacity has been placed in operation during the second and third quarters of this year. This increase brings the nation's total refining capacity, on a crude-oil charging basis, to near the 6.25-million-barrel-per-day mark.

Project completions scheduled for the last quarter of this year, which includes a new 25,000-bbl.-per-day refinery at Salt Lake City, are expected to up crude-oil capacities another 150,000 bbl. per day. When these projects go on stream capacity figures for the United States will total approximately 6,400,000 bbl. per day. By the third quarter of 1949 the total crude-oil charging capacity of domestic refineries is scheduled to range around 6,600,000 bbl. per day.

Six new refineries now building and scheduled for 1949 completion have a crude-oil capacity rating of nearly 80,000 bbl. per day. Other projects which contribute substantially to the over-all picture and scheduled for completion in the first 3 quarters of 1949 include expansion to existing facilities. Revamping and modernization of operating refineries also adds a relatively large figure to the total crude-oil charging capacity increases reported on The Oil and Gas Journal's third quarter survey of the industry.

Catalytic cracking capacity placed in operation up to the end of the third quarter of this year totals approximately 100,000 bbl. per day on a rating basis for both new plants and revamped or modernized installations. Scheduled for completion later this year and for the first half of 1949 are some 9 or 10 catalytic cracking projects which include both new units and revamping of existing installations. An approximate combined capacity of these projects exclusive of those units included in new refineries is upward of 115,000 bbl. per day.

Completions on catalytic cracking units scheduled for the last half of 1949 involve nearly 100,000 bbl. per day of charging capacity on a rating basis. In the majority of cases for both new units and revamped or modernized cracking plants the over-all project includes new, modernized, or revamped related or associated processes.

On a comparative basis Canadian refineries also come in for substantial capacity increases. Several of the refineries there reported on crude-oil charging rate and catalytic cracking capacity expansion. Completions for Canadian refineries during the second and third quarters of this year include two projects which involve crude-oil capacity increases. Four other projects reported as completed by Canadian refineries include lube oil, asphalt, L.P.G. polymerization facilities.

New petrochemical plants reported on include those of the gas synthesis plant under construction in Texas to a miscellaneous group of other installations in various parts of the country. These plants range in capacity from tons per year to gallons per day on a capacity basis and operate to produce a number of different materials from fertilizer to ethyl alcohol.

Other projects listed here and under completion for the second and third quarters include, to mention a few, facilities for the manufacture of lubes, asphalts, and motor-fuel blending materials. Equipment for feed-stock preparation is also reported on as are grease-compounding facilities and packaging installations, all of which contribute to the industry's over-all expansion picture.

Natural-gas processing-plant completions and projects now building are listed in this issue, on page 88.

Indicative of the industry's growth are the 171 projects listed in the accompanying table which involve every phase of refining. Completed projects for the second and third quarter periods are listed in the table on page 85. The total for this group is reported at 75.

REFINING AND PETROCHEMICAL PLANT PROJECTS—COMPILED BY THE OIL AND GAS JOURNAL'S REFINING STAFF

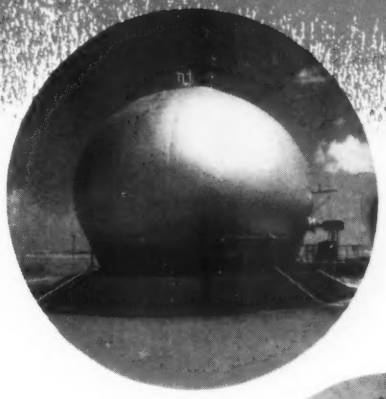
Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Aetna Oil Co., Louisville:				
Additional storage, bbl.	17,000	Authorized	Early '49	Chicago Bridge & Iron Co. and Joseph W. Greathouse
Ashland Oil & Refining Co., Catlettsburg, Ky.:				
Modernizing catalytic cracking unit, bbl. per day	12,000	Building	Late '48	Catalytic Construction Co.
Atlantic Refining Co., Philadelphia:				
Modify combination cracking unit	.....	Building	Late '48	.....
Atlantic Refining Co., Port Arthur:				
Modify combination cracking unit	.....	Building	Late '48	.....
Bareco Oil Co., Barnsdall, Okla.:				
Propane deasphalting unit, bbl. per day	600	Considering	.....	.....
Bareco Oil Co., Wichita:				
L.P.G. extraction unit, bbl. per day	250	Building	Late '48	Born Engineering Co.
Berry Asphalt Co., Stephens, Ark.:				
Refinery expansion	.....	Planned	.....	.....
British-American Oil Co., Ltd., Port Moody, Canada:				
New refinery	.....	Planned	.....	.....
British-American Oil Co., Ltd., Montreal:				
Catalytic cracking unit, bbl. per day	13,500	Building	Sept. '49	The M. W. Kellogg Co.
Cat. polymerization unit, bbl. per day	500	Building	Late '49	The M. W. Kellogg Co.-Koch Engineering Co., Inc.
Crude distillation unit, bbl. per day	14,500	Building	Sept. '49	The M. W. Kellogg Co.
California Asphalt Corp., Portland, Ore.:				
Asphalt stills	.....	Building	Late '48	California Asphalt Co.
Calumet Refining Co., Princeton, La.:				
Remodeling distillation equipment	.....	Building	1948	.....
Steam generating plant	.....	Building	1948	.....
Additional storage	.....	Building	1948	.....

REFINERY, PETROCHEMICAL PROJECT SURVEY

Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Carter Oil Co., Billings, Mont.:				
New refinery, bbl. per day	20,000	Building	Mid '49	Fluor Corp.-Universal Oil Products Co.
Carthage Hydrocol, Inc., Brownville, Tex.:				
Hydrocarbon synthesis plant, cu. ft. per day	100,000,000	Building	Late '49	Arthur G. McKee & Co.
Citcon Corp., Lake Charles, La.:				
Lube-oil plant, bbl. per day	6,000	Building	Late '48	The Lummus Co.-Max B. Miller
Cities Service Oil Co. (Del.), Chicago:				
Compounding plant, bbl. per day	1,200	Authorized	Mid '49	Sumner S. Sollitt Co.
Continental Oil Co., Billings, Mont.:				
New refinery, bbl. per day	6,800	Building	Late '49	Jones & Laughlin Supply Co.
Continental Oil Co., Denver:				
Increase crude-oil capacity, bbl. per day	6,750	Building	Late '48	The Lummus Co.
Catalytic cracking unit	.....	Building	Late '48	The Lummus Co.
Catalytic polymerization unit	.....	Building	Late '48	The Lummus Co.
Continental Oil Co., Ponca City, Okla.:				
Revamp refining facilities, bbl. per day	51,500	Building	Late '49	Bechtel Corp.
Continental Refining Co., Oil City, Pa.:				
Additional storage	.....	Planned	.....	.....
Cooperative Refinery Association, Coffeyville, Kans.:				
Dewaxing unit, bbl. per day	2,500	Building	Early '49	Process Engineers, Inc.
Revamp crude-oil unit, bbl. per day	4,000	Building	Late '48	.....
Cosden Petroleum Corp., Big Springs, Tex.:				
Catalytic cracking, bbl. per day	6,000	Building	Late '49	Universal Oil Products Co., Refinery Engineering Co.
Derby Oil Co., Wichita:				
Cat. cracking and plant changes	.....	Considering	.....	.....
Dewese Oil Refinery, Weston, Ohio:				
Filtering equipment	.....	Building	1948	.....
Desalting facilities	.....	Building	1948	.....
Empire Petroleum Co., Denver:				
Crude-oil distillation unit, bbl. per day	3,000	Planned	.....	.....
Additional storage, bbl.	100,000	Planned	.....	.....
Asphalt storage warehouse	.....	Planned	.....	.....
Empire State Oil Co., Thermopolis, Wyo.:				
Crude-oil topping unit, bbl. per day	5,000	Building	Mid '49	Refinery Engineering Co.
Esso Standard Oil Co., Baton Rouge:				
Vacuum distillation units (2), bbl. per day	14,500	Building	Late '48	Arthur G. McKee & Co.
Polymerization and recovery units, cu. ft. per day	20,000,000	Building	Late '48	Arthur G. McKee & Co.
Esso Standard Oil Co., Bayonne, N. J.:				
Dewaxing unit, bbl. per day	7,500	Building	Early '50	E. B. Badger & Sons Co.
Esso Standard Oil Co., Linden, N. J.:				
Catalytic cracking unit, bbl. per day	41,000	Building	Early '49	C. F. Braun Co.
Vacuum distillation unit, bbl. per day	49,000	Building	Early '49	C. F. Braun Co.
Frontier Refining Co., Cheyenne, Wyo.:				
Treating unit, bbl. per day	5,000	Building	Late '48	Walco Const. Co.-Universal Oil Products Co.
General Petroleum Corp., Torrance, Calif.:				
Revamp crude unit, bbl. per day	32,000	Building	Late '48	C. F. Braun Co.
Expand cat. cracker furnace, bbl. per day	4,000	Building	Early '49	The Lummus Co.
Great Lakes Refining Co., Blue Island, Ill.:				
Catalytic cracking unit, bbl. per day	5,000	Building	1949	.....
Gulf Refining Co., Cincinnati:				
Catalytic cracking unit, bbl. per day	15,000	Building	Mid '49	The M. W. Kellogg Co.
Polymerization unit, bbl. per day	5,000	Building	Mid '49	The M. W. Kellogg Co.
Gulf Refining Co., Toledo:				
Topping and vacuum unit, bbl. per day	32,000	Building	Oct. '48	E. B. Badger & Sons Co.
Catalytic cracking unit, bbl. per day	15,500	Building	May '49	The M. W. Kellogg Co.
Polymerization unit, bbl. per day	5,000	Building	May '49	The M. W. Kellogg Co.
Hancock Chemical Co., Watson, Calif.:				
Sulfur-recovery plant, tons per day	50	Building	Jan. '49	E. B. Badger & Sons Co.
Humble Oil & Refining Co., Baytown, Tex.:				
Pipe still, bbl. per day	45,000	Building	Late '49	Foster Wheeler Corp.
Solvent extraction unit, bbl. per day	7,000	Building	Late '49	The M. W. Kellogg Co.
Husky Refining Co., Lloydminster, Canada:				
Increase refinery capacity, bbl. per day	5,000	Building	Late '48	.....
Hutex Oil & Refining Co., Hardin, Tex.:				
Replacement storage, bbl.	15,000	Building	Mid '48	Union Tank Co.
Imperial Oil, Ltd., Edmonton, Canada:				
Moving refinery, bbl. per day	6,000	Building	Late '48	M. W. Barnes
Kanotex Refining Co., Arkansas City, Kans.:				
Catalytic desulfurization-reforming unit, bbl. per day	4,200	Building	Mid '48	Koch Engineering Co., Inc.
Revamp vapor-recovery unit, bbl. per day	1,000	Building	Late '48	Koch Engineering Co., Inc.
Lion Oil Co., El Dorado, Ark.:				
Topped crude vacuum reducing unit, bbl. per day	7,000	Building	Early '49	.....
Increase petrochemical plant, tons per day	140	Building	Early '49	Chemical Construction Corp.
Magnolia Petroleum Co., Beaumont, Tex.:				
Dewaxing unit, bbl. per day	4,100	Building	Feb. '49	The Lummus Co.
Solvent-extraction unit, bbl. per day	3,300	Building	Jan. 49	The Lummus Co.
Vacuum units (2), bbl. per day	9,500	Building	Dec. '48	The M. W. Kellogg Co.
Mercury Oil Refining Co., Oklahoma City:				
Crude-oil topping unit, bbl. per day	5,000	Building	Late '48	Refinery Engineering Co.
McCarty Chemical Co., Winnie, Tex.:				
Petrochemical plant	.....	Building	.....	Telepsen Const. Co.
McColl-Frontenac Oil Co., Ltd., Montreal:				
Catalytic cracking and cat. poly. units	.....	Building	Late '48	The M. W. Kellogg Co.
MFA Oil Co. (Refinery Div.), Chanute, Kans.:				
Desulfurization facilities, bbl. per day	1,000	Authorized	Late '48	Koch Engineering Co., Inc.
Mid-Continent Petroleum Corp., West Tulsa, Okla.:				
Catalytic cracking unit, bbl. per day	13,500	Building	Late '48	The M. W. Kellogg Co.
Midland Co-op. Wholesale, Cushing, Okla.:				
Thermal reforming unit, bbl. per day	1,000	Building	Mid '49	Refinery Engineering Co.

THE HORTON LINE

Five Famous Structures Meet the Diversified Storage Needs of the Oil Industry

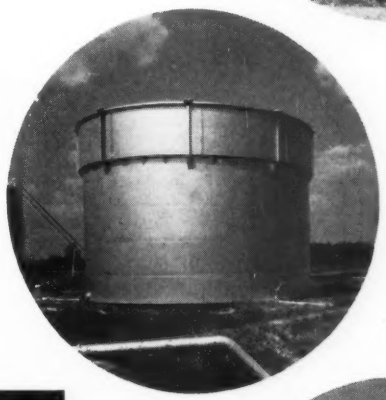


HORTONSPHEROIDS

Large-capacity containers for storing motor gasolines and natural gasolines under pressures from 2½ to 100 lbs. Capacities from 2,000 to 120,000 bbls. For engineering data on Hortonspheroids, ask our nearest office for Bulletin E.

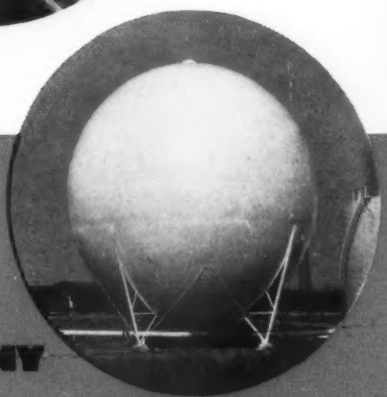
HORTONSPHERES

High pressure containers for holding the most volatile products, such as butane, propane, and volatile refinery stocks. Pressure settings from 25 to 100 or more lbs. per sq. in. Capacities—1,000 to 25,000 bbls. Ask for Bulletin F.



HORTON LIFTER ROOFS

Horton Liquid Seal Lifter Roofs provide an expansible vapor space which permits the vapor above a stored liquid to expand and contract without venting a portion of the vapor. Ask for Bulletin C.



VAPORSPHERES

A Horton Vaporsphere may be used with one or more cone-roof tanks to form a vapor-saving system. The vapor displaced from cone-roof tanks is stored temporarily in the Vaporsphere instead of being vented and lost. Ask for Bulletin D.

CHICAGO BRIDGE & IRON COMPANY

the Horton DOUBLE-DECK

REDUCES EVAPORATION LOSSES

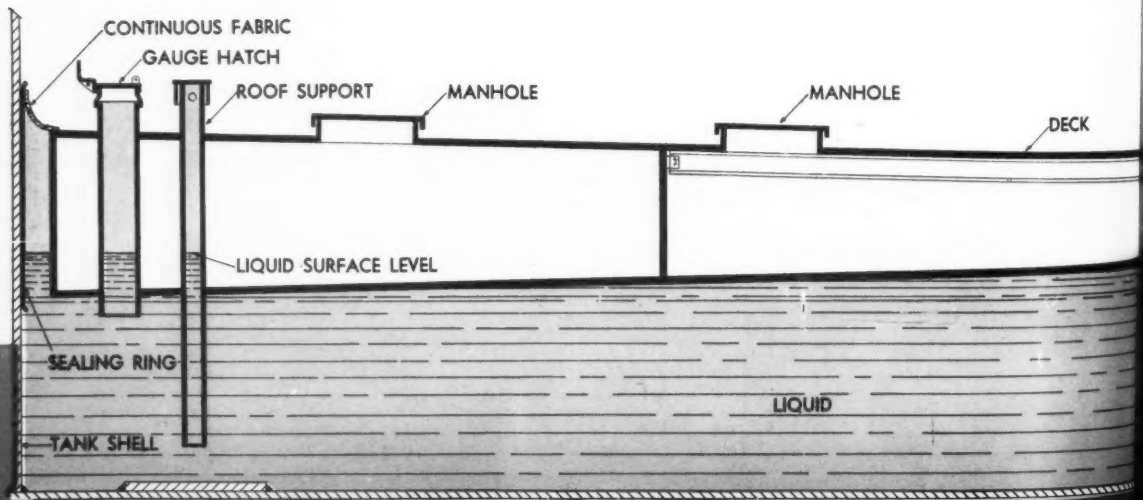
Horton Double-Deck Floating Roofs are used on flat-bottom tanks storing crude oil or gasoline. They prevent "breathing" and "filling" losses because they float on the surface of the liquid and eliminate the vapor space present in fixed-roof tanks. They reduce "boiling" losses by insulating the liquid with the dead air space between the roof decks.

PROTECTS PRODUCT QUALITY

Horton Double-Deck Floating Roofs protect the quality of motor gasolines by greatly reducing the evaporation of the lighter, most volatile components. These light fractions are responsible for the quick starting and anti-knock properties essential in modern, high-quality motor fuels.

PROVIDES FIRE SAFETY

Horton Double-Deck Floating Roofs have been listed by the Underwriters' Laboratories as an approved device for reducing the fire hazard in oil storage tanks. This fire safety is largely due to the elimination of any vapor space in the tank.



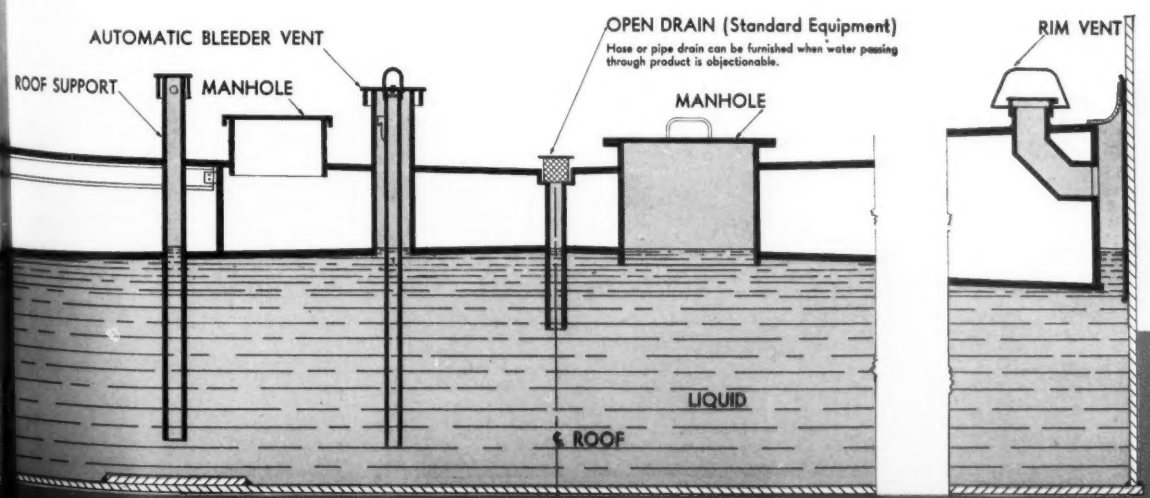
FLOATING ROOF

Left: 35,000-bbl. tank equipped with a Horton Double-Deck Floating Roof.

Across bottom of page: Cross section drawing of a Horton Floating Roof showing how roof eliminates vapor space.

Construction and operating features of the HORTON DOUBLE-DECK FLOATING ROOF

- Space between deck and tank shell is closed by the most effective seal ever developed for a floating roof.
- Improved double-deck construction insulates liquid and prevents boiling. This extends the range of products which can be stored in tanks with floating roofs.
- Entire bottom of deck is in contact with liquid, reducing corrosion.
- Rain water drains rapidly to screened opening at center. Roof is practically unsinkable, and extremely stable.
- Open sump drains rain water into tank. Pipe or flexible hose drain to carry water outside tank supplied if desired.
- Bottom of deck coned up to center to vent air trapped under deck when roof is floated, or to collect and hold entrained vapors until they recondense.
- Top of deck is smooth and free of obstructions. Roof installed on new or existing flat-bottom tanks complete with supports, gauge hatch, bleeder vent, drain, emergency drain, manholes, and ladder.



CHICAGO BRIDGE & IRON COMPANY

Three methods of reducing evaporation losses with storage tanks and vapor-saving devices built by

CHICAGO BRIDGE & IRON COMPANY

METHOD NO. 1
PRESSURE STORAGE

This method of reducing evaporation losses makes use of storage tanks that permit the building up of pressure in the vapor space. As long as the pressure in the tank does not exceed the setting of the relief valve, no vapor will escape and there will be no evaporation loss. Hortonspheres, Hortonspheroids and Hemispheroids are examples of pressure vessels of this type. Selection of the most efficient type of pressure container is determined by the volatility of the product to be stored.

METHOD NO. 2
ELIMINATION OF VAPOR SPACE

The elimination of the vapor space in a flat-bottom storage tank is accomplished by installing a Horton Double-Deck Floating Roof on the tank. The roof floats directly on the surface of the liquid, hence there is no air-vapor mixture above the liquid to expand and contract. This eliminates all breathing and filling losses. "Insulation" provided by the dead air space in the double-deck construction reduces boiling losses from all except the most volatile of petroleum products.

METHOD NO. 3
TEMPORARY STORAGE OF VAPOR

This method provides facilities for storing additional vapor volume due to thermal expansion. Horton Vaporspheres and Horton Lifter Roofs are used for this purpose. The Vaporsphere is an independent vapor storage unit used with one or more tanks. Lifter roofs are installed directly on flat-bottom tanks. Individual tanks may be equipped with lifter roofs or the vapor spaces of several adjoining tanks may be connected into one lifter roof to form a vapor-saving system.

HERE IS HOW HORTON DOUBLE-DECK FLOATING ROOFS, HORTON VAPORSPHERES, HORTON LIFTER ROOFS AND HORTON PRESSURE STORAGE TANKS COMPARE WITH GAS-TIGHT FIXED-ROOF TANKS IN PREVENTING EVAPORATION LOSSES DURING THE STORAGE OF MOTOR GASOLINE

TANK SIZE		LOSS IN BARRELS OF 42 U.S. GALLONS							
		Gas-tight Fixed Roof		Horton Floating Roof		Vaporsphere or Horton Lifter Roof		Hortonspheroid for 2½ lbs. per sq. in. pressure	
Capacity in Barrels	Diameter in Feet	Annual Breathing	One Filling	Annual Breathing	One Filling	Annual Breathing	One Filling	Annual Breathing	One Filling
10,000	42 1/2	300	15	64	0	0	12	0	12
20,000	60	540	30	90	0	0	24	0	24
30,000	73 1/3	750	45	110	0	0	36	0	36
40,000	85	960	60	128	0	0	48	0	48
50,000	95	1150	75	142	0	0	60	0	60
60,000	104	1340	90	156	0	0	72	0	72
70,000	112 1/2	1520	105	169	0	0	84	0	84
80,000	120	1700	120	180	0	0	96	0	96
100,000	134	2050	150	201	0	0	120	0	120

CHICAGO BRIDGE & IRON COMPANY

ATLANTA • BIRMINGHAM • BOSTON • CHICAGO • CLEVELAND • DETROIT • HAVANA • HOUSTON
LOS ANGELES • NEW YORK • PHILADELPHIA • SALT LAKE CITY • SAN FRANCISCO • SEATTLE • TULSA
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY AND GREENVILLE, PENNSYLVANIA

REPRESENTATIVES AND LICENSEES

Chicago Bridge & Iron Company, Ltd., Caracas, Venezuela
Ateliers et Chantiers de la Seine Maritime, Paris, France
Constructions Metalliques de Provence, Arles-sur-Rhone, France
Compania Tecnica Industrie Petroli, S.A.I., Rome, Italy
Leopoldo Sol & Cia., Reconquista 558, Buenos Aires, Argentina
Horton Steel Works, Limited, Fort Erie, Ontario, Canada
Whessoe, Limited, Darlington, England
Motherwell Bridge & Engineering Company, Limited, Motherwell, Scotland

Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Mohawk Petroleum Corp., Bakersfield, Calif.:				
Topping and feed preparation unit, bbl. per day	7,500	Authorized	Late '48	
Monarch Refineries, Inc., Oklahoma City:				
Vacuum lube unit		Planned		
North Star Refining Co., Shelby, Mont.:				
Moving refinery		Planned		
Ohio Oil Co., The, Robinson, Ill.:				
Catalytic cracking unit, bbl. per day	12,400	Building	Late '48	Universal Oil Products Co.-Arthur G. McKee & Co.
Atmospheric and vacuum unit, bbl. per day	27,500	Building	Late '48	Universal Oil Products Co.-Arthur G. McKee & Co.
Catalytic poly. unit, bbl. per day	3,800	Building	Late '48	Universal Oil Products Co.-Arthur G. McKee & Co.
Increase steam-generating plant, lb. per hr.	240,000	Building	Late '48	Arthur G. McKee & Co.
Increase electric-generating plant, kw.	10,000	Building	Late '48	Arthur G. McKee & Co.
Gasoline-treating plant		Building	Late '48	Universal Oil Products Co.-Arthur G. McKee & Co.
Pana Refining Co., Pana, Ill.:				
Revisions to thermal cracker		Building	Mid '49	Refinery Engineering Co.
Paluxy Asphalt Co., Yazoo City, Miss.:				
Additional cracking facilities, bbl. per day	1,000	Building	Late '48	
Paraffine Companies, The, Inc., Emeryville, Calif.:				
Asphalt stills (2), bbl.	720	Building		
Superheaters for stills		Building		
Pennzoil Co., The, Rouseville, Pa.:				
Additional boilers		Building	Early '49	Dravo Construction Co.
Petroleum Specialties, Inc., Flat Rock, Mich.:				
Crude-oil fractionator, bbl. per day	6,000	Building	Late '48	
Phillips Chemical Co., Etter, Tex.:				
Petrochemical plant capacity increase to, tons per year	100,000	Authorized		
Phillips Oil Co., Kansas City, Kans.:				
Catalytic cracking unit, bbl. per day	24,000	Building	Late '49	C. F. Braun Co.
Catalytic polymerization unit, bbl. per day	1,500	Building	Late '49	C. F. Braun Co.
Compounding plant		Building	Late '48	Winn-Center, Phillips
Lube oil unit, bbl. per day	1,500	Building	Early '49	The M. W. Kellogg Co.
Producers Refinery, Inc., West Branch, Mich.:				
Refinery expansion, bbl. per day	1,500	Planned	1948	
Pure Oil Co., Nederland, Tex.:				
Lube plant		Building	Late '48	The Lummus Co.-The M. W. Kellogg Co.
Compounding and blending plant		Building	Late '48	Stone & Webster Engr. Co.
Pure Oil Co., Toledo:				
Naphtha-manufacturing unit		Authorized	Late '48	
R & J Refining Co., Princeton, Ind.:				
New refinery		Building		
Republic Oil Refining Co., Texas City, Tex.:				
Polymerization unit, bbl. per day	850	Building	Dec. '48	Universal Oil Products Co.-Republic
Rock Island Refining Corp., Rock Island, Ind.:				
Catalytic cracking unit, bbl. per day	5,000	Building	Mid '49	Universal Oil Products Co.-Rock Island Staff
Root Petroleum Co., El Dorado, Ark.:				
Topping heater		Building		
Shallow Water Refining Co., Shallow Water, Kans.:				
Reforming unit, bbl. per day	1,250	Authorized	Late '49	Koch Engineering Co.
Shamrock Oil & Gas Corp., Sunray, Tex.:				
Increase refinery capacity, bbl. per day	5,000	Building	Nov. '48	
Shell Oil Co., Inc., Wilmington and Martinez, Calif.:				
Gasoline treater		Building	Late '48	
Extend insecticide plant		Building	Late '48	
Lube-handling facilities		Building	Late '48	
Extend tank storage		Building	Late '49	Chicago Bridge & Iron Co.
Extend cracking-plant compressors		Building	Late '49	Fluor Corp.
Shell Oil Co., Inc., Norco, La.:				
Fractionator, bbl. per day	12,000	Building	Late '48	
Sinclair Refining Co., East Chicago, Ind.:				
Catalytic cracking unit, bbl. per day	25,000	Building	Late '48	C. F. Braun Co.
Lube-treating plant, bbl. per day	2,500	Building	Late '48	The Lummus Co.
Polymerization unit		Building	Late '48	C. F. Braun Co.
Crude unit, bbl. per day	30,000	Building	Late '48	C. F. Braun Co.
Sinclair Refining Co., Marcus Hook, Pa.:				
Catalytic cracking unit, bbl. per day	25,000	Building	Late '48	C. F. Braun Co.
Polymerization unit		Building	Late '48	C. F. Braun Co.
Vacuum unit, bbl. per day	24,000	Building	Late '48	C. F. Braun Co.
Sinclair Refining Co., Houston:				
Crude unit, bbl. per day	30,000	Building	Late '48	Fluor Corp.
Grease works and barrel house		Building	Late '48	Fluor Corp.
Skelly Oil Co., El Dorado, Kans.:				
Increase refinery capacity		Building	Mid '50	The M. W. Kellogg Co.
Socony-Vacuum Oil Co., Inc., Paulsboro, N. J.:				
Crude unit		Building	Early '49	E. B. Badger & Sons Co.
Lube unit		Building	Early '49	E. B. Badger & Sons Co.
Socony-Vacuum Oil Co., Inc., Augusta, Kans.:				
Catalytic cracking unit, bbl. per day	15,000	Considering		
Socony-Vacuum Oil Co., Inc., Casper, Wyo.:				
Catalytic cracking unit, bbl. per day	7,000	Building	Early '49	Catalytic Construction Co.
Topping facilities and gas plant, bbl. per day	3,000	Building	Late '48	Catalytic Construction Co.
Socony-Vacuum Oil Co., Inc., East St. Louis, Ill.:				
Crude unit, bbl. per day	17,000	Building	Late '49	Bechtel Corp.
Thermal cracking unit, bbl. per day	15,000	Building	Late '49	Bechtel Corp.
Solutizer treating unit, bbl. per day	20,000	Building	Late '49	Bechtel Corp.

REFINERY, PETROCHEMICAL PROJECT SURVEY

Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Southwestern Oil & Refining Co., Corpus Christi, Tex.:				
Catalytic reforming unit, bbl. per day	5,000	Building	Late '48	Process Engineers, Inc.
Topping unit, bbl. per day	25,000	Building	Early '49	Process Engineers, Inc.
Standard Oil Co. of California, Salt Lake City:				
Refinery, bbl. per day	25,000	Building	.....	Bechtel Corp.
Standard Oil Co. of California, Bakersfield, Calif.:				
Catalytic cracking unit, bbl. per day	10,000	Authorized	Mid '49	.....
Alteration to crude unit, bbl. per day	20,000	Authorized	Mid '49	.....
Standard Oil Co. of California, Richmond, Calif.:				
Wax plant	.....	Building	Late '48	.....
Standard Oil Co. of California, El Segundo, Calif.:				
Modernize filling plant	.....	Building	Late '48	.....
Standard Oil Co. (Ind.), Casper, Wyo.:				
Catalytic cracking unit, bbl. per day	8,000	Building	1949	The M. W. Kellogg Co.
Standard Oil Co. (Ind.), Whiting:				
Motor-oil facilities	.....	Building	1948	.....
Standard Oil Co. (Ohio), Lima:				
Catalytic cracking unit, bbl. per day	16,000	Building	Late '49	Arthur G. McKee & Co.
Combination crude-coking unit, bbl. per day	15,000	Authorized	Early '50	The M. W. Kellogg Co.
Standard Oil Co. (Ohio), Toledo:				
Solvent extraction unit, bbl. per day product	1,800	Authorized	Mid '50	The Lummus Co.
Vacuum unit, bbl. per day	9,000	Authorized	Mid '50	The Lummus Co.
Propane deasphalting unit, bbl. per day	800	Authorized	Mid '50	The M. W. Kellogg Co.
Stanolind Oil & Gas Co., Brownsville, Tex.:				
Chemicals recovery and refining, lb. per year	100,000,000	Authorized	Early '50	E. B. Badger & Sons Co.
Stanton Chemicals, Inc., Corpus Christi, Tex.:				
Petrochemical plant, tons per day	50	Building	Late '48	.....
Sun Oil Co., Toledo:				
Catalytic cracking and topping units, bbl. per day each	30,000	Building	Late '49	Catalytic Construction Co.
Crude-oil desalting unit, bbl. per day	20,000	Authorized	.....	.....
Sun Oil Co., Marcus Hook, Pa.:				
Crude-oil desalting unit, bbl. per day	20,000	Authorized	.....	.....
Wax ref. plant	.....	Building	Dec. '48	.....
Packaging plant	.....	Building	Dec. '48	.....
Sunray Oil Corp., Allen, Okla:				
Expand refining capacity	.....	Considering	.....	.....
Sunset Oil Co., Los Angeles:				
Additional topping facilities, bbl. per day	2,000	Considering	.....	.....
Texas Co., Westville, N. J.:				
New refinery, bbl. per day	40,000	Building	Mid '49	Foster Wheeler Corp., The M. W. Kellogg Co., Jackson-Moreland
Texas Co., West Tulsa:				
Increase refinery capacity, bbl. per day	30,000	Building	Mid '49	Foster Wheeler Corp., The M. W. Kellogg Co., Universal Oil Products Co.
Texas Co., Port Arthur, Tex.:				
Expand lube facilities (production capacity), bbl. per day	2,500	Building	Early '49	Foster Wheeler Corp.
Alter treating facilities	.....	Building	Early '49	Foster Wheeler Corp.
Texas Co., Lawrence, Ill.:				
Expand refinery, bbl. per day (added capacity)	20,000	Considered	Early '51	.....
Tide Water Associated Oil Co., Drumright, Okla.:				
Catalytic cracking unit	5,000	Authorized	Late '49	Process Engineers, Inc.
Tide Water Associated Oil Co., Bayonne, N. J.:				
Crude unit, bbl. per day	22,500	Building	Early '49	J. F. Pritchard & Co.
Propane deasphalting unit, bbl. per day	3,400	Building	Early '49	J. F. Pritchard & Co.
Solvent extraction unit, bbl. per day	8,750	Building	Early '49	J. F. Pritchard & Co.
Trans-Marine Oil & Refining Co., South Milwaukee, Wis.:				
New refinery, bbl. per day	5,000	Authorized	Late '48	Refinery Engineering Co.
Trinidad Leaseholds (Canada), Ltd., Port Credit, Canada:				
Treating plant	.....	Planned	.....	.....
Troy Refining Co., Inc., Troy, Ind.:				
Moving refinery, bbl. per day	1,800	Considering	.....	.....
Union Oil Co. of California, Oleum, Calif.:				
Plant revisions	.....	Building	1949	Refinery Maintenance Co., Inc., Ralph H. Parsons Co.
Grease-plant improvements	.....	Building	1949	J. M. Montgomery & Co.
Lube-dewaxing plant revisions, bbl. per day	1,900	Building	1949	The M. W. Kellogg Co.
Solvent extraction unit, bbl. per day	6,000	Building	1949	Max B. Miller & Co.
Asphalt loading facilities	.....	Building	1949	Early Construction Co.
Union Oil Co. of California, Wilmington, Calif.:				
Ethylene plant, tons per year	15,000	Authorized	Early '49	Foster Wheeler Corp.
Hydrogen sulfide unit, tons per year	4,500	Authorized	Early '49	.....
Ethyl alcohol plant	.....	Authorized	1949	.....
Hydrogen sulfide recovery, bbl. per day	30,000	Authorized	1949	Ehrhart & Arthur, Inc.
United Refining Co., Warren, Pa.:				
New laboratory	.....	Planned	.....	.....
Increase steam-generating capacity	.....	Planned	.....	.....
Utah Oil & Refining Co., Salt Lake City:				
Propane deasphalting unit, bbl. per day	10,000	Authorized	Early '49	The M. W. Kellogg Co.
Extend steam-generating plant, lb. per hr.	65,000	Authorized	Early '49	Stearns-Roger Mfg. Co.
Waggoner Estate Refinery, Electra, Tex.:				
Modernize thermal cracking unit, bbl. per day	3,500	Building	Late '48	Refinery Engineering Co.
Western States Refining Co., North Salt Lake City, Utah:				
New refinery, bbl. per day	1,500	Building	.....	.....
Winnsboro Refining Co., Winnsboro, Tex.:				
New refinery, bbl. per day	2,800	Building	Late '48	Petro-Chemical Engineering & Const. Co.
Wood River Oil & Refining Co., Wood River, Ill.:				
Catalytic cracking unit, bbl. per day	7,500	Building	Late '49	.....

Earning

UNITED Pumping Units are earning praise from production men everywhere. Why? Because they are "paying off" in dependability and sturdiness, and because they require a minimum of maintenance. Structural members are stronger and heavier. For the best in pumping units . . . and all oil field equipment and supplies, see your UNITED man. Seventeen convenient stores, each completely stocked.

Uncle Sandy

THE UNITED SUPPLY MAN

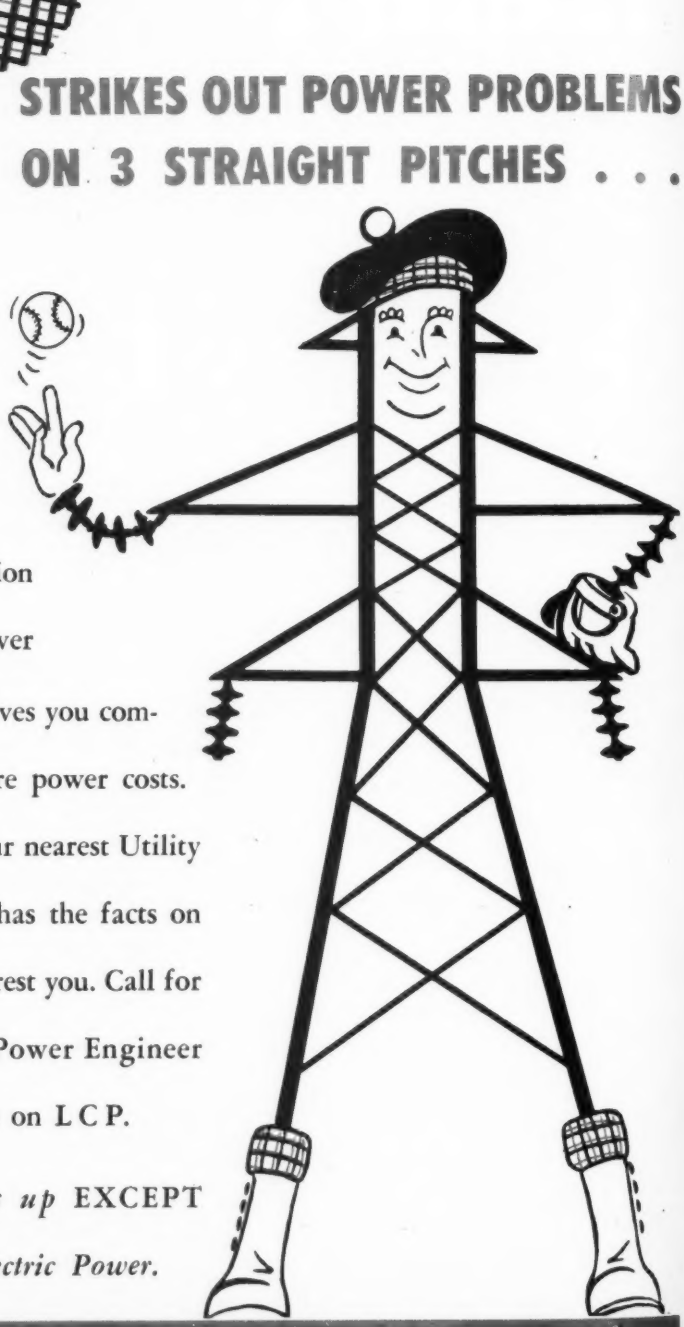
Courtesy
Service
Dependability

UNITED SUPPLY
AND *Manufacturing* COMPANY
TULSA, OKLAHOMA
Stores in Kansas, Oklahoma, Texas,
Louisiana, and New Mexico

LCP*

STRIKES OUT POWER PROBLEMS ON 3 STRAIGHT PITCHES . . .

- **Save on operating, maintenance and labor costs**
- **Reduce your first-cost of power-driven equipment**
- **Get dependable around-the-clock performance**



* One decision — your decision to use Utility Electric Power for any or all power jobs gives you complete control of your future power costs. The Power Engineer of your nearest Utility Electric Power Company has the facts on actual cases which will interest you. Call for the Power Engineer for facts on LCP.

Everything's up EXCEPT *Utility Electric Power.*

Use Utility Electric Power!

PETROLEUM ELECTRIC POWER ASSOCIATION

Box 1498, Oklahoma City, Oklahoma

REFINERY AND PETROCHEMICAL PLANT PROJECTS COMPLETED IN 2ND AND 3RD QUARTERS THIS YEAR

Company, location and type of project—	Capacity rating
Aetna Oil Co., Louisville:	
Process tankage, bbl.	32,000
Storage, bbl.	105,000
Atlantic Refining Co., Philadelphia:	
Propane-deasphalting plant, bbl. per day	4,400
Phenol-extraction unit, bbl. per day	2,800
Extension to steam-generating plant, lb. per hour	150,000
Synthetic-detergent plant, lb. per day	10,000
Bareco Oil Co., Wichita:	
Catalytic reforming-desulfurization unit, bbl. per day	4,000
British-American Oil Co., Ltd., Clarkson, Ont., Canada:	
Lube-oil blending plant, bbl. per day	1,000
British-American Oil Co., Ltd., Montreal:	
Catalytic polymerization unit, bbl. per day	200
L.P.G. plant, bbl. per day	200
Cities Service Oil Co. (Del.), East Chicago, Ind.:	
Skimming and cracking plant, bbl. per day	35,000
Continental Oil Co., Ponca City, Okla.:	
Modernize catalytic cracking unit, bbl. per day	20,000
L.P.G. plant, bbl. per day	600
Eastern States Petroleum Co., Inc., Houston:	
Crude-oil desalting unit, bbl. per day	20,000
Elk Refining Co., Falling Rock, W. Va.:	
Crude-oil still	
Envoy Petroleum Co., Long Beach, Calif.:	
Addition to asphalt unit, bbl. per day	800
Esso Standard Oil Co., Baton Rouge:	
Atmospheric distillation unit, bbl. per day	58,000
Deoiling unit, bbl. per day	1,500
Dewaxing unit, bbl. per day	4,000
Vacuum-distillation unit, bbl. per day	18,500
Fen-Ter Refining Co., Wynnewood, Okla.:	
Atmospheric and vacuum units, bbl. per day	7,500
Gilcrease Oil Co., Aribi, La.:	
Skimming plant, bbl. per day	5,000
Gulf Oil Corp., Port Arthur, Tex.:	
Topping and vacuum units (2), bbl. per day	44,000
Catalytic desulfurization unit, bbl. per day	17,000
Naphtha polyform unit	
Imperial Oil, Ltd., Montreal:	
Crude unit, bbl. per day	12,000
Indiana Farm Bureau Coop. Association, Mount Vernon, Ind.:	
Increase skimming plant, bbl. per day	4,000
Lakeside Refining Co., Kalamazoo, Mich.:	
Storage, bbl.	45,000
Magnolia Petroleum Co., Beaumont, Tex.:	
Two-stage crude unit, bbl. per day	6,500
McCarty Chemical Co., Winnie, Tex.:	
Cycloversion unit, bbl. per day	12,000
McMurrey Refining Co., Tyler, Tex.:	
Catalytic polymerization unit, cu. ft. per day	776,000
Midland Coop. Wholesale, Cushing, Okla.:	
Thermal cracking unit, bbl. per day	2,000
Skimming unit, bbl. per day	6,500
Paluxy Asphalt Co., Yazoo City, Miss.:	
Additional storage capacity, bbl.	55,000
Pan American Refining Corp., Texas City, Tex.:	
Desalting unit, bbl. per day	65,000
Petroleum Specialties, Inc., Flat Rock, Mich.:	
Desalting units, bbl. per day	6,000
Desulfurization heater, bbl. per day	2,000
Pure Oil Co., The, Newark, Ohio:	
Cat. cracking, bbl. per day	5,000
Radio Oil Refineries, Ltd., East Kildonan, Canada:	
Refinery-capacity increase, bbl. per day	1,000
Republic Oil Refining Co., Texas City, Tex.:	
Revamp cat. cracking unit	
Shell Oil Co., Inc., Houston:	
Lube-oil plant, bbl. per day	2,800
Shell Oil Co., Inc., Martinez, Calif.:	
Motor laboratory extension	
Pilot plant building	
Shell Oil Co., Inc., Norco, La.:	
Cracked asphalt plant, tons per year	30,000
Skelly Oil Co., Longview, Tex.:	
Butane extraction unit	
Southland Oils, Inc., Sandersville, Miss.:	
Additional storage, bbl.	88,000
Standard Oil Co. of British Columbia, Ltd., Burnaby, B. C., Canada:	
Cutback asphalt facilities	
Standard Oil Co. (Ind.), Whiting, Ind.:	
Catalytic cracking unit, bbl. per day	25,000
Expand crude and coking unit, bbl. per day	27,000
Standard Oil Co. (Ind.), Sugar Creek, Mo.:	
Catalytic cracking unit, bbl. per day	25,000
Standard Oil Co. of Texas, El Paso:	
Gas-oil distillation unit, bbl. per day	1,500
Sun Oil Co., Marcus Hook, Pa.:	
Solvent extraction plant, bbl. per day	2,360
Refinery increase, bbl. per day	5,000
Sun Oil Co., Toledo:	
Refinery increase, bbl. per day	2,000
Sunray Oil Corp., Allen, Okla.:	
Modernize vacuum unit	
Sunray Oil Corp., Beckett, Okla.:	
Revamp and expand refinery, bbl. per day	20,000
Talco Asphalt and Refining Div. of American Liberty Oil Co., Mount Pleasant, Tex.:	
Polymerization unit, cu. ft. per day	2,800,000

France Leads in Foreign Refinery Capacity Increases

CAPACITIES involved in the refinery projects now reported as building outside of the United States and Canada total approximately 150,000 bbl. per day of crude oil. This capacity, reported on the Journal's world-wide survey of the refining industry, includes both new plants and revisions or expansion to existing equipment. Upwards of more than 20 projects make up this capacity which is distributed throughout South America, Australia, Europe, Middle East, East and West Indes, Mexico, England, Wales, and Canary Islands. In all. 74 projects are reported on the industry outside of North America. Status of these projects is listed below.

Of the projects now under way. France leads in total capacity and number of projects. The total capacity increase for France is reported at 133,000 bbl. per day and the number of projects at seven. Venezuela is second on the same basis with but two projects which total 100,000 bbl. per day.

REFINERY EXPANSION OUTSIDE THE UNITED STATES

Company and location—	Capacity	Status
AFRICA		
Anglo Transvaal Consolidated & Investment Co., Ltd., S. Africa:		
Hydrocarbon synthesis plant, bbl. per day	1,300	Planned
ARGENTINA		
Yacimiento Petroliferos Fiscales, La Plata:		
Increase crude-oil capacity, bbl. per day	20,000	Building
AUSTRALIA		
Bitumen Oil & Refining Co., Sydney:		
Plant, bbl. per day	1,000	Building
Commonwealth Oil Refineries, Ltd., Laverton:		
Refinery, bbl. per day	2,800	Building
Vacuum Oil Co., Pty., Ltd., Altona:		
Refinery, bbl. per day	1,200	Building
BELGIUM		
Cie. Industrielle Atlas, S.A. Belge, Hoboken-Antwerp:		
L.P.G. plant, cu. ft. per day	85,000	Building
Tankage et Transport "Radian," Antwerp:		
Increase topping plant, bbl. per day	2,000	Planned
BOLIVIA		
Yacimientos Petroliferos Fiscales, Cochabamba:		
Refinery, bbl. per day	5,000	Planned
Sucre:		
Skimming plant, bbl. per day	1,000	Planned

REFINERY, PETROCHEMICAL PROJECT SURVEY

Company and location—	Capacity	Status
BRAZIL		
Conselho Nacional do Petroleo, Bahia:		
Refinery, bbl. per day	2,500	Building
Refineria de Petroleos do Distrito Federal, S.A.: Rio de Janeiro:		
Refinery, bbl. per day	10,000	Planned
BURMA		
Burmah Oil Co., Ltd., Syriam:		
Reconstruct refinery, bbl. per day	20,000	Planned
British Burmah Pet. Co., Ltd., Seikkyi:		
Reconstruct refinery, bbl. per day	3,500	Planned
Thilawa:		
Reconstruct refinery, bbl. per day	2,500	Planned
CANARY ISLANDS		
Cia. Espanola de Petroleos, S.A., Sta. Cruz de Tenerife:		
Atmospheric and vacuum unit		Building
Lube-oil facilities		Building
CHILE		
Corp. de Fomento, Santiago:		
Refinery, bbl. per day	10,000	Planned
COLOMBIA		
Colombian Petroleum Co., Cucuta:		
Increase refinery capacity to, bbl. per day	840	Building
EAST INDIES		
Sarawak Oil Fields, Ltd., Island of Maura:		
New refinery, bbl. per day	35,000	Planned
De Bataafsche Petroleum Mij., Pladjoe:		
Capacity increase, bbl. per day	10,000	Building
Standard-Vacuum Pet. Mij., Gerong:		
Capacity increase, bbl. per day	25,000	Building
ECUADOR		
Anglo-Ecuadorian Oil Fields, Ltd., La Libertad:		
Capacity increase, bbl. per day	1,200	Building
ENGLAND		
Manchester Oil Refinery, Ltd., Trafford Park:		
Expansion of refinery		Planned
Shell Refining & Marketing Co., Ltd., Shallow Haven and Stanlow:		
Capacity increase		Planned
Thornton-le Moors:		
Petrochemical plant		Building
Trent Oil Products Development Co., Tynemouth:		
Refinery, bbl. per day	15,000	Planned
FRANCE		
Cie. Industrielle des Petroles, Frontignan:		
Capacity increase, bbl. per day	20,000	Building
Reforming facilities		Building
Revamping distillation equipment		Building
Cie. Franciase de Raffinage, Gonfreville-L'Orcher:		
Crude unit, bbl. per day	20,000	Building
Solutizer unit, bbl. per day	16,000	Building
A La Mede:		
Crude unit, bbl. per day	20,000	Building
Solutizer unit, bbl. per day	11,000	Building
Raffineries de la Vacuum Oil Co., S.A.F., Gravenchon:		
Lube-oil facilities		Planned
Grease-compounding plant		Planned
Naphtha reformer, bbl. per day	1,500	Planned
Vis-breaker, bbl. per day	2,000	Planned
Raffineries de Petroles de la Gironde, Ambes:		
Refinery, bbl. per day	13,000	Building
Societe Generale des Huiles de Petrole, Dunkirk:		
Reconstructing refinery, bbl. per day	26,000	Building
Societe de Raffinage des Huiles de Petrole, Courchelettes:		
Moving topping unit to Dunkirk, bbl. per day	33,000	Building
Lube plant, bbl. per day	1,000	Planned
IRAN		
Anglo-Iranian Oil Co., Abadan:		
Catalytic cracker, bbl. per day	30,000	Building
Lube-oil plant, bbl. per day	500	Building
Agip Anglo-Iranian, Marghera:		
Refinery, bbl. per day	20,000	Planned
ITALY		
Industria Raffinazione Olii Minerali, Venice:		
Thermal reformer, bbl. per day	2,500	Building
Crude unit, bbl. per day	12,000	Building
Raffineria de Napoli, S.P.A., Naples:		
Rebuild cracker and reformer		Building
Crude unit, bbl. per day	10,000	Building
MEXICO		
Petroleos Mexicanos, Salamanca:		
Refinery, bbl. per day	30,000	Building
Mata Redonda:		
Capacity increase, bbl. per day	7,000	Planned
NETHERLANDS		
Caltex Petroleum Mij., Rotterdam:		
Refinery, bbl. per day	20,000	Planned
N.V. de Bataafsche Petroleum Mij., Pernis:		
Increase capacity by, bbl. per day	50,000	Authorized
N.V. Standard-Vacuum Petroleum Mij., Soengei Gerong:		
Rehabilitating and expanding refinery, bbl. per day	18,000	Building
PALESTINE		
Consolidated Refineries, Ltd., Haifa:		
Capacity increase, bbl. per day	3,000	Building
Lube plant, bbl. per day	2,500	Planned
PORTUGAL		
S.A. Concessionaria de Refinacae de Petroleos em Portugal, Cabo Ruivo:		
Capacity increase		Considering
SAUDI ARABIA		
Arabian American Oil Co., Ras Tanura:		
Capacity increase, bbl. per day	11,000	Building
SCOTLAND		
Scottish Oils, Ltd., Grangemouth:		
Additional crude-oil capacity, bbl. per day	21,000	Planned
SPAIN		
Cia. Arrendataria del Monoplio de Petroleos S.A., Cornella:		
Refinery		Planned
TRIESTE		
"Aquila" S.A. Tecnico-Industriale, Trieste:		
Capacity increase, bbl. per day	2,000	Planned
TRINIDAD		
United British Oilfields of Trinidad, Ltd., Point Fortin:		
Asphalt plant		Building
Addition to asphalt plant		Building
URUGUAY		
Administracion Nacional de Combustibles, Alcohol y Portland, Montevideo:		
Capacity increase, bbl. per day	6,700	Planned
VENEZUELA		
Creole Petroleum Corp., Amuay Bay:		
Refinery, bbl. per day	60,000	Building
Molata field:		
Gas-processing plant		Authorized
El Roble field:		
Gas-processing plant		Planned
Mene Grande Oil Co., Puerto La Cruz:		
Refinery, bbl. per day	20,000	Planned
West Guara:		
Gas-processing plant		Building
Oficina:		
Gas-repressuring plant		Building
Richmond Exploration Co., Maracaibo:		
Refinery, bbl. per day	25,000	Planned
Royal Dutch-Shell (interests), Punta Cardon:		
Refinery, bbl. per day	40,000	Building
Sinclair Oil Corp., Porto La Cruz:		
Refinery, bbl. per day	35,000	Planned
WALES		
National Oil Refineries, Ltd., Llandarcy:		
Capacity increase, bbl. per day	45,000	Building

MORE ENGINES *all* RED SEAL

Thousands of specialized Red Seal engines are now coming off Continental Motors production lines. Rapidly-increasing numbers of these Red Seal engines are finding their way to rigs, pumps, compressors, and other power equipment in oil fields here and abroad.

Whether you need a TINY TIM portable generating unit to provide light at the well, or heavy-duty engines for continuous operation, you'll find that Continental has the engine designed to meet that need, at lowest over-all cost. There's a complete range of Red Seal engines, from ½ to 110 h.p., each built with oil field fuel and operating requirements in mind, and each backed by the nationwide network of Red Seal service and parts. Let us send you the name of the nearby Continental dealer who will supply a Red Seal engine ***built for your job.***

Continental also makes specialized engines that are standard equipment in trucks, earth movers, tractors, cementers, compressors, winches, pumps, and welders. If you fly a personal or executive plane, the chances are that it, too, is Continental-powered.

WINCHES

PUMPS

WELDERS

TRUCKS

Continental Motors Corporation

205 Market St., Muskegon, Michigan

6218 CEDAR SPRINGS ROAD, DALLAS 1, TEXAS

Natural-Gas Processing Units on Upgrade, With 107 Projects in Active Status

by R. B. Tuttle

DESPITE the completion of 18 natural-gas processing plants, as reported on The Oil and Gas Journal's third quarter survey, the number of projects authorized, building or in the planning stage in this branch of the petroleum industry is still increasing. Currently, 107 projects are in the active class—20 more than were reported at mid-year.

Over 40 per cent of the projects listed in the accompanying table are either building or authorized new plant construction. These projects cover the different types of plants in respect to residue gas disposal. Some of the projects are scheduled for operation on injection service whereas others will be operated primarily for liquid extraction.

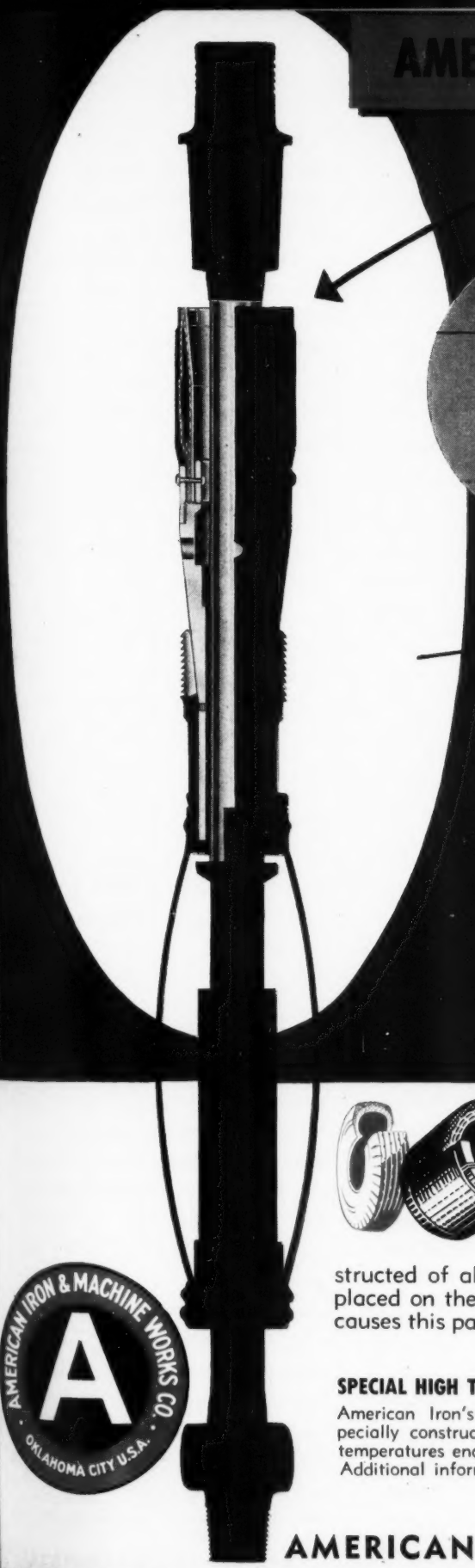
A substantial number of the projects now building or authorized include improvements or expansion to existing facilities. Additional equipment for extraction of L.P.G. or for increased efficiency also contribute to building activity in this field.

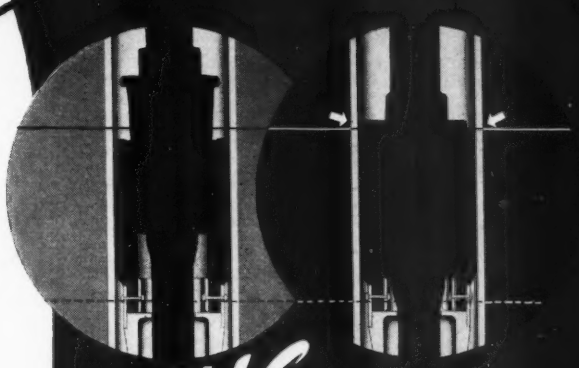
Completions made during the second and third quarters of this year include eight new plants. One carbon-black unit, two cycling and five gasoline plants comprise the completed plants. The other 18 projects cover various kinds of plant improvements and additions.

NATURAL-GAS PROCESSING PLANT PROJECTS

Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Abercrombie Co., J. S., Brazoria County, Texas:				
Revamp separator stations	.....	Building	Late '48	V. L. Chambliss
Crude-oil stabilization unit, bbl. per day	20,000	Building	Late '48	Delta Engineering Co.
American Republics Corp., Hardin County, Texas:				
Extend injection system	.....	Authorized	Late '48	Latex Construction Co.
Gasoline plant, cu. ft. per day	58,500,000	Building	Nov. '48	Gasoline Plant Construction Corp.
Apache Gasoline Co., Caddo County, Oklahoma:				
High-pressure absorption, cu. ft. per day	3,500,000	Authorized	.....	L. S. Gregory Co.
Arkansas Fuel Oil Co., Greggton, Tex.:				
Increase propane recovery	.....	Building	Jan. '49	.....
Arkansas Fuel Oil Co., Panola County, Texas:				
Gasoline-plant capacity increase to, cu. ft. per day	100,000,000	Building	Late '48	.....
Arkansas Fuel Oil Co., Waskom, Tex.:				
Gasoline-plant capacity increase to, cu. ft. per day	72,000,000	Building	Jan. '49	.....
Increase plant capacity, cu. ft. per day	30,000,000	Building	Jan. '50	.....
Arkansas Fuel Oil Co., Jefferson, Tex.:				
Gasoline-plant capacity increase to, cu. ft. per day	46,000,000	Building	Jan. '49	.....
Arkansas Fuel Oil Co., Bienville Parish, Louisiana:				
L.P.G. capacity increase to, cu. ft. per day	35,000,000	Building	Late '48	.....
Arkansas Fuel Oil Co., Magnolia, Ark.:				
Increase low-pressure gas input, cu. ft. per day	5,000,000	Building	Late '48	.....
Atlantic Refining Co., Crane County, Texas:				
Pressure-maintenance plant, cu. ft. per day	8,000,000	Building	Mid '49	Hudson Engineering Co.
Barnsdall Oil Co., Victoria County, Texas:				
Compressor station, cu. ft. per day	8,000,000	Building	Jan. '49	O. L. Olsen
California Co., Hico, La.:				
Gasoline plant	.....	Building	.....	.....
California Co., Rangely, Colo.:				
Gasoline plant, cu. ft. per day	20,000,000	Building	.....	Hudson Engineering Co.
California Co., Brookhaven, Miss.:				
Gasoline plant, cu. ft. per day	10,000,000	Building	.....	Hudson Engineering Co.
Chicago Corp., Carthage, Tex.:				
Plant increase to, cu. ft. per day	210,000,000	Building	Mid '49	Fish Engineering Corp.
Cities Service Oil Co., Pampa, Tex.:				
Gasoline plant, cu. ft. per day	18,000,000	Building	Mid '49	Walco Engineering & Const. Co.
Claiborne Gasoline Co., Lisbon, La.:				
Plant addition, cu. ft. per day	50,000,000	Building	Late '48	Petroleum Engineering, Inc.
Continental Oil Co., Crockett County, Texas:				
Gasoline plant, cu. ft. per day	10,000,000	Authorized	Mid '49	Refinery Maintenance Co., Inc.
Duval Gasoline Co., Duval County, Texas:				
Absorption plant, cu. ft. per day	10,000,000	Building	Late '48	.....
El Paso Natural Gas Co., Pecos County, Texas:				
Gasoline plant, cu. ft. per day	20,000,000	Authorized	1949	El Paso Natural Gas Co.
El Paso Natural Gas Co., Upton County, Texas:				
Gasoline plant, cu. ft. per day	50,000,000	Authorized	1949	El Paso Natural Gas Co.
El Paso Natural Gas Co., Ward County, Texas:				
Gasoline plant, cu. ft. per day	20,000,000	Authorized	1949	El Paso Natural Gas Co.
General Petroleum Corp., Washakie County, Wyoming:				
Recycling plant, cu. ft. per day	3,000,000	Building	Late '48	Utah Construction Co.
Grimes, Otho H., Fisher County, Texas:				
High-pressure absorption, cu. ft. per day	1,500,000	Building	Late '48	L. S. Gregory Co.
Gulf Oil Corp., Drinkard, N. M.:				
Gasoline plant, cu. ft. per day	35,000,000	Building	June '49	Hudson Engineering Co.
Gulf Oil Corp., Crane County, Texas:				
Gasoline plant, cu. ft. per day	40,000,000	Building	.....	C. F. Braun Co.
Harrington & Marsh, Texas County, Oklahoma:				
Gasoline plant, cu. ft. per day	100,000,000	Building	Late '48	J. F. Pritchard & Co.
Honolulu Oil Corp., Kern County, California:				
Gasoline plant, cu. ft. per day	30,000,000	Building	Late '48	J. B. Gill Co.

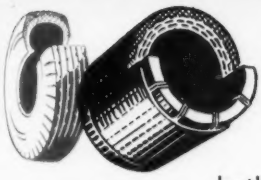
AMERICAN TYPE G PACKER





SEALS WITHOUT CRUSHING THE CUP

Regardless of depth, pressure, or difficult completion conditions, this packer gives a positive seal . . . without crushing cup! Here's why! In above circle at left you see the cone descending into the packing element horizontally against the casing as the cone moves downward. In circle at right the cone has stopped in its final position. Note how, through the force of lateral expansion, the rubber has moved up (see white arrows) and now forms a complete, positive seal! The packing element is now expanded laterally — not compressed — an exclusive American Iron feature!



PACKING ELEMENT RETURNS TO ORIGINAL SHAPE

Our exclusive design of this packing element takes full advantage of modern tire fabrication principles. Sketches at left show the great similarity of cut-away portions of both cup and tire . . . show how both are constructed of alternating layers of rubber . . . with fabric cut and placed on the bias! It's this exclusive method of fabrication that causes this packing element to return to its original shape!

SPECIAL HIGH TEMPERATURE PACKING CUP . . .

American Iron's high temperature packing cup is especially constructed to help you combat the increasing temperatures encountered as wells go deeper and deeper. Additional information on request.

AMERICAN IRON & MACHINE WORKS CO. A OKLAHOMA CITY U.S.A.

AMERICAN IRON & MACHINE WORKS CO.

Oklahoma City, Oklahoma — Box 1177 — Phone L.D. 518 — District Office, Houston, Texas — Export Office: 420 Lexington Ave., New York City, N. Y.

NATURAL-GAS PROCESSING PLANT SURVEY

Company, location and type of project—	Capacity rating	Status	Schedule Comp.	Contractors
Humble Oil & Refining Co., Seeligson field, Texas:				
Gas-injection plant, cu. ft. per day	20,000,000	Building	Jan. '49	Stearns-Roger Mfg. Co.
Humble Oil & Refining Co., Conroe, Tex.:				
Enlarge gasoline plant to, cu. ft. per day	30,000,000	Building	Mid '49	Stearns-Roger Mfg. Co.
Humble Oil & Refining Co., Pickton field, Texas:				
Gasoline plant, cu. ft. per day	18,000,000	Building	Early '49	Fluor Corp.
Humble Oil & Refining Co., Opelousas, La.:				
Gasoline plant, cu. ft. per day	110,000,000	Building	Mid '49	Hudson Engineering Co.
Humble Oil & Refining Co., Flour Bluff field, Texas:				
Residue gas compression plant, cu. ft. per day	12,000,000	Authorized	Mid '49	.....
Humble Oil & Refining Co., Bloomington, Tex.:				
Gas-Compression plant, cu. ft. per day	22,000,000	Authorized	1949	.....
Humble Oil & Refining Co., Katy, Tex.:				
Additional propane absorption facilities	.....	Building	Apr. '49	Stearns-Roger Mfg. Co.
Humble Oil & Refining Co., Kelsy field, Texas:				
Gas-injection plant, cu. ft. per day	18,000,000	Building	Mar. '49	Stearns-Roger Mfg. Co.
Kansas Power & Light Co., Sawyer, Kans.:				
Addition to compressor station	.....	Building	Early '49	Dresser Engineering Co.
Lion Oil Co., Magnolia field, Arkansas:				
Dehydration unit, cu. ft. per day	15,000,000	Building	Late '48	Lion Oil Co. and R. A. Graff
Lion Oil Co., Bryceland, La.:				
Dehydration unit, cu. ft. per day	25,000,000	Building	Late '48	National Tank Co. and Lion Oil Co.
Lion Oil Co., Schuler, Ark.:				
Gas treater, cu. ft. per day	2,000,000	Building	Late '48	R. A. Graff, O. L. Olson
Lone Star Producing Co., Henderson County, Texas:				
Expanding gasoline plant, gal. per day	20,000	Building	Late '48	.....
Lone Star Gas Co., Eastland County, Texas:				
Increase L.P.G. production of, gal. per day	15,000	Considering	.....	.....
Lone Star Gas Co., Palo Pinto County, Texas:				
Hypersorption plant, gal. per day	50,000	Authorized	.....	Foster Wheeler Co.
Magnolia Petroleum Co., Grady County, Oklahoma:				
Gasoline and recycling plant, cu. ft. per day	30,000,000	Building	.....	.....
Magnolia Petroleum Co., Seeligson field, Texas:				
Cycling plant, cu. ft. per day	220,000,000	Building	Apr. '49	Hudson Engineering Co.
Magnolia Petroleum Co., Mamou, La.:				
Gasoline plant, cu. ft. per day	7,000,000	Building	Late '48	Gasoline Plant Const. Corp.
Magnolia Petroleum Co., Hicock, Kans.:				
Gasoline plant, cu. ft. per day	100,000,000	Building	Jan. '49	.....
Magruder, P. S., Operator, Western States gasoline plant, Kings County, Calif.:				
Absorption facilities	.....	Considering	.....	.....
McCarty Chemical Co., Winnie, Tex.:				
Second absorption plant unit, cu. ft. per day	100,000,000	Building	.....	.....
Mid-Continent Petroleum Corp., Okfuskee County, Oklahoma:				
Gasoline plant, gal. per day	10,000	Authorized	1948	.....
Northern Natural Gas Co., Oakland, Iowa:				
Addition to compressor station	.....	Building	Late '48	Dresser Engineering Co.
Parade Company, Overton, Tex.:				
Increase capacity, propane recovery, gal. per day	12,500	Building	Early '49	Hudson Engineering Co.
Phillips Petroleum Co., Guymon, Okla.:				
Gasoline plant, cu. ft. per day	173,000,000	Authorized	July '49	.....
Phillips Petroleum Co., Alvin, Tex.:				
Gasoline plant, cu. ft. per day	120,000,000	Authorized	Sept. '49	.....
Phillips Petroleum Co., Dumas, Tex.:				
Gasoline plant, cu. ft. per day	55,000,000	Building	Sept. '48	.....
Phillips Petroleum Co., Goldsmith, Tex.:				
Expand gasoline-plant capacity by, cu. ft. per day	16,000,000	Building	Nov. '48	.....
Phillips Petroleum Co., Andrews, Tex.:				
Expand gasoline-plant capacity by, cu. ft. per day	24,000,000	Building	Oct. '48	.....
Phillips Petroleum Co., Oil Center, N. M.:				
Expand gasoline-plant capacity by, cu. ft. per day	16,000,000	Building	Oct. '48	.....
Phillips Petroleum Co., Caddo County, Oklahoma:				
Repressuring plant	.....	Authorized	Mid '49	Dresser Engineering Co.
Republic Oil Refining Co., Benavides, Tex.:				
Gasoline plant, cu. ft. per day	10,000,000	Building	Late '48	Republic Oil Refining Co.
Richardson & Bass, Kermit, Tex.:				
Gasoline plant, cu. ft. per day	130,000,000	Building	Late '48	Jones & Laughlin Supply Co.
Richfield Oil Corp., Kern County, California:				
Gasoline plant, cu. ft. per day	60,000,000	Building	1948	C. F. Braun Co.
Shamrock Oil & Gas Co., Hutchinson County, Texas:				
Installing gas-compressor unit, hp.	2,900	Building	July '49	The Shamrock O. & G. Co.
Shell Oil Co., Inc., Ventura, Calif.:				
Increase gasoline plant, gal. per day	60,000	Authorized	Late '48	.....
Shell Oil Co., Inc., Capitan field, California:				
Remodel plant	.....	Considering	.....	.....
Shell Oil Co., Inc., Dominguez, Calif.:				
Remodel plant	.....	Considering	.....	.....
Shell Oil Co., Inc., Notrees, Tex.:				
Gasoline-plane extension, cu. ft. per day	30,000,000	Building	Early '50	Brown & Root
Shell Oil Co., Inc., Yoakum County, Texas:				
Adding L.P.G. facilities	.....	Authorized	Late '49	Fluor Corp.
Sinclair Prairie Oil Co., Seminole, Okla.:				
Gasoline-plant extension	.....	Building	Late' 48	Dresser Engineering Co.
Skelly Oil Co., Eunice, N. M.:				
Increase gasoline plant, gal. per day	60,000	Building	1948	J. E. Carlson & Sons Const. Co.
Skelly Oil Co., Carson County, Texas:				
Plant expansion	.....	Building	Late '49	J. E. Carlson
Southern Union Gas Co., Kutz Canyon field, New Mexico:				
Gasoline plant, cu. ft. per day	20,000,000	Building	Apr. '49	Refinery Maintenance Co., Inc.

NATURAL-GAS PROCESSING PLANT SURVEY

Company, location and type of project—	Capacity rating	Status	Comp. schedule	Contractors
Stanolind Oil & Gas Co., Hugoton field, Kansas:				
Gasoline plant, cu. ft. per day	100,000,000	Authorized	Late '48	Jones & Laughlin Supply Co.
Stanolind Oil & Gas Co., Hockley County, Texas:				
Gasoline plant, cu. ft. per day	90,000,000	Building	Feb. '49	C. F. Braun Co.
Stanolind Oil & Gas Co., Park County, Wyoming:				
Gasoline plant, cu. ft. per day	12,000,000	Building	Apr. '49.	Stone & Webster Eng. Corp.
Stanolind Oil & Gas Co., Bee County, Texas:				
Cycling plant, cu. ft. per day	166,000,000	Building	Apr. '49	Jones & Laughlin Supply Co.
Stanolind Oil & Gas Co., Hockley County, Texas:				
Gasoline plant		Considering		
Stanolind Oil & Gas Co., Andrews County, Texas:				
Gasoline plant		Authorized		Jones & Laughlin Supply Co.
Stanolind Oil & Gas Co., North Cowden field, Texas:				
Gasoline and repressuring plant expansion		Authorized	1950	Stearns-Roger Mfg. Co.
Stanolind Oil & Gas Co., Chambers County, Texas:				
Compressor plant, cu. ft. per day	14,000,000	Building	Nov. '49	J. F. Pritchard & Co.
Sun Oil Co., Starr County, Texas:				
Gasoline plant, cu. ft. per day	35,000,000	Building	May '49	Petroleum Engr., Inc.
Sun Oil Co., Coke County, Texas:				
Gasoline plant, cu. ft. per day	10,000,000	Building	Apr. '49	J. F. Pritchard & Co.
Sun Oil Co., Chambers County, Texas:				
Compressor plant, cu. ft. per day	14,000,000	Building	Dec. '49	J. F. Pritchard & Co.
Sun Oil Co., Chacahoula, La.:				
Compressor plant, cu. ft. per day	2,500,000	Building	Dec. '48	J. F. Pritchard & Co.
Sun Oil Co., N. Cankton, La.:				
Compressor plant, cu. ft. per day	1,300,000	Building	Dec. '48	J. F. Pritchard & Co.
Sun Oil Co., Shuteston, La.:				
Compressor plant, cu. ft. per day	2,750,000	Building	Dec. '48	J. F. Pritchard & Co.
Texas Natural Gasoline Co., Jones County, Texas:				
Gasoline plant, cu. ft. per day	4,500,000	Building	Sept. '48	
Texas Co., Electra, Tex.:				
Absorption plant, cu. ft. per day	2,000,000	Authorized	Late '48	
Union Oil Co. of California, Brea Olinda field, California:				
Increase absorption facilities, cu. ft. per day	6,000,000	Considering		
Union Oil Co. of California, Grimes Canyon, California:				
Gas-injection plant, cu. ft. per day	3,000,000	Authorized		
Union Oil Co. of California, Lompoc field, California:				
Increase gas-injection plant, cu. ft. per day	1,500,000	Authorized	Nov. '48	Union Oil Co. of California
Union Oil Co. of California, Cat Canyon field, California:				
Increase gas-injection plant, cu. ft. per day	3,000,000	Building	Oct. '48	Union Oil Co. of California
United Gas Pipe Line Co., Carthage, Tex.:				
Gasoline plant, cu. ft. per day	100,000,000	Building	Mid '49	Hudson Engineering Co.
Warren Petroleum Corp., Madill, Okla.:				
Expand plant unit, gal. per day	20,000,000	Building	Early '49	Hudson Engineering Co.
Warren Petroleum Corp., Holliday, Tex.:				
Expand gasoline plant, cu. ft. per day	20,000,000	Building	Late '48	
Warren Petroleum Corp., Taylor's Corner, Tex.:				
Gasoline plant, cu. ft. per day	6,000,000	Building	Early '49	Walco Engineering & Const. Co.
Warren Petroleum Corp., Jacksboro, Tex.:				
Gasoline plant addition, cu. ft. per day	3,000,000	Building	Early '49	
Warren Petroleum Corp., Monument, N. M.:				
Gasoline plant, cu. ft. per day	60,000,000	Building	Late '48	Dresser Engineering Co.
Warren Petroleum Corp., Gladewater, Tex.:				
Additional L.P.G. facilities, cu. ft. per day	20,000,000	Building	Early '49	J. B. Gill Co.
Warren Petroleum Corp., Maysville, Okla.:				
Gasoline plant, cu. ft. per day	30,500,000	Building	Early '49	Dresser Engineering Co.
Wescol Oil & Gas Co., Nordheim, Tex.:				
Cycling plant, cu. ft. per day	25,000,000	Building	Nov. '48	F. S. West Co.
West Texas Gas Co., Plainview, Tex.:				
Addition to compressor station, hp.	300	Building	Late '48	W. H. Boden
West Texas Gas Co., Tahoka, Tex.:				
Addition to compressor station, hp.	300	Building	Late '48	W. H. Boden
West Texas Gas Co., Fritch, Tex.:				
Revise gasoline plant		Building		W. H. Boden

NATURAL-GAS PROCESSING-PLANT PROJECTS COMPLETED IN 2ND AND 3RD QUARTERS 1948

Arkla Oil Co., North Rodessa field, Louisiana:	
Install engines, hp.	2,000
Barnsdall Oil Co., Newhall, Calif.:	
Gasoline plant, cu. ft. per day	40,000,000
Barnsdall Oil Co., West Tepetate field, Louisiana:	
Gasoline plant, cu. ft. per day	20,000,000
Gray Wolfe Co., Montgomery County, Texas:	
Cycling plant, cu. ft. per day	19,000,000
Gregg-Tex Gasoline Corp., Gregg County, Texas:	
Additional L.P.G. facilities	
Humble Oil & Refining Co., Overton, Tex.:	
Additional propane-absorption refrigeration	
Laird Hill, Tex.:	
Additional propane-absorption refrigeration	
Lion Oil Co., Schuler, Ark.:	
Propane-recovery unit, gal. per day	10,000
Compressor station, hp.	600
Gas treater, cu. ft. per day	2,000,000
Lone Star Producing Co., Houston County, Texas:	
Additional L.P.G. facilities, gal. per day	5,000
Northern Natural Gas Co., Sunray, Tex.:	
Increase compressor units, hp.	1,000
Pan American Producing Co., Kountze, Tex.:	
Cycling plant, cu. ft. per day	5,000,000
Phillips Petroleum Co., Andrews, Tex.:	
Gasoline plant capacity increase, cu. ft. per day	16,000,000
Phillips Petroleum Co., Goldsmith, Tex.:	
Gasoline plant capacity increase, cu. ft. per day	16,000,000
Shamrock Oil & Gas Co., Moore County, Texas:	
Compression unit, hp.	3,000
Skelly Oil Co., Velma pool, Oklahoma:	
Gasoline plant, gal. per day	75,000
Shell Oil Co., Inc., Denver City, Tex.:	
Gasoline-plane extension, cu. ft. per day	32,000,000
Shell Oil Co., Inc., Magnolia, Ark.:	
Gasoline plant addition, cu. ft. per day	8,000,000
Shell Oil Co., Inc., Yoakum, Tex.:	
Gasoline-plant addition	
Sun Oil Co., Delhi, La.:	
Gasoline plant, cu. ft. per day	17,000,000
Union Oil Co. of Calif., Dominguez field, California:	
Rebuild absorption and comp. plants	
West Edmond Huntington Lime Unit, W. Edmond, Okla:	
Pressure-maintenance and dehydration units, cu. ft. per day	10,000,000
West Texas Gas Co., Canyon, Tex.:	
Addition to compressor station, hp.	1,320
Witco Hydrocarbon Corp., Reagan County, Texas:	
Gasoline plant, cu. ft. per day	25,000,000
Carbon-black plant, cu. ft. per day	16,500,000

ADVERTISERS are *Concentrating* their space

Why is advertising volume increasing in The Oil and Gas Journal at the same time it is falling off, or increasing far more slowly, in other oil publications? It's because more and more advertisers are learning that The Journal gives them INTEGRATED "all-industry" coverage . . . serving the industry in the same manner as the integrated oil companies operate within the industry. Hence, advertisers are concentrating their advertising to the extent that they are first doing a dominant impressive job in the leading oil publication before spreading their budget too thin in some of the "30 other oil papers."

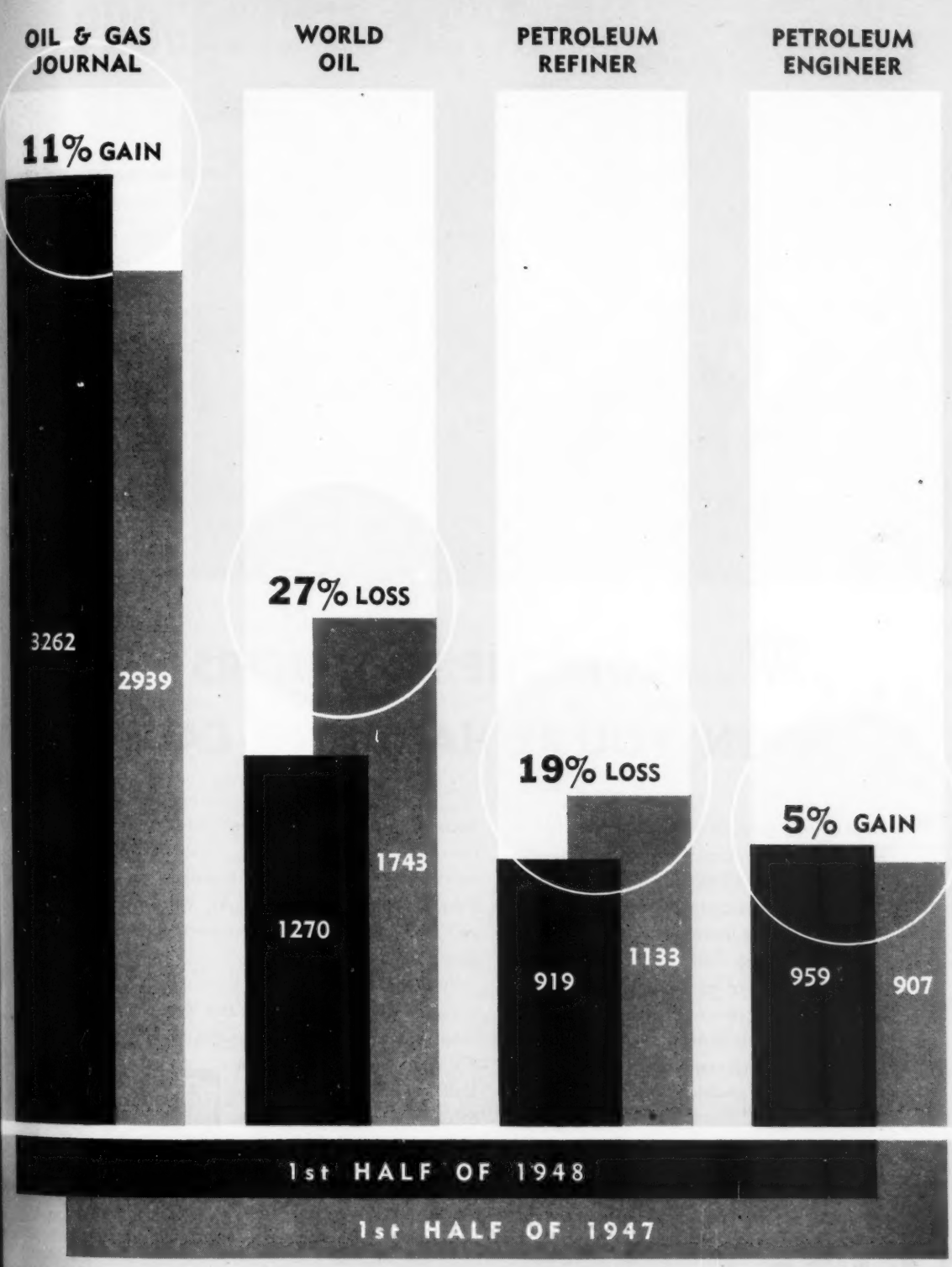
The Journal provides selective circulation, not only reaching 5,748 more oil men than any other paper, but reaching the vital personnel . . . men who actually buy or influence the buying of equipment, in all divisions of the industry. Editorially The Journal likewise excels, by providing its readers more technical articles (by actual count) in all divisions of the industry, which are keyed directly to the needs of these same men who buy or influence the buying of equipment.

YES, more and more readers are concentr their valuable reading time in The Journ more and more advertisers become aware this trend and concentrate their advertis the leading paper.

Long experience has taught both reader advertiser that

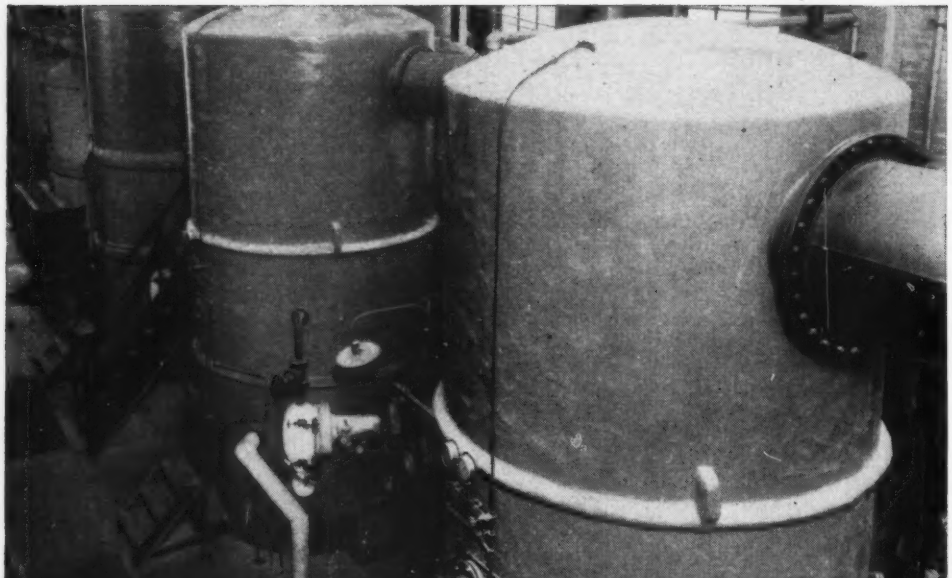
"Follow The Jou

PUBLICATION OFFICES: TULSA I.



...Journal...and You follow the Oil Industry!

TULSA 1, OFFICES: NEW YORK, PITTSBURGH, CHICAGO, LOS ANGELES, HOUSTON, ENGLAND, CANADA



Has longer useful life

The three bodies of this multi-circulation caustic evaporator are constructed of $\frac{5}{16}$" thick Nickel-Clad Steel, with $\frac{3}{8}$" thickness in the heads. Designed by Zaremba Company of Buffalo for Niagara Alkali Co., Niagara Falls, N. Y.

Take a Tip FROM THE PRODUCERS WHEN YOU'RE HANDLING CAUSTICS

Producers of caustics were among the first to recognize the economies gained by building their equipment of Lukens Nickel-Clad Steel. They get the corrosion-resistant properties of *solid* nickel at the lower cost of *clad* steel.

Lukens Nickel-Clad Steel provides an interior surface of nickel, which is highly resistant to the corrosive attack of caustic soda, permanently bonded to a steel backing plate. Thus, the equipment has long life and the finished product is kept free of iron contamination.

Many other kinds of equipment similarly employ Lukens Clad Steels in the production, transportation, storage and use of caustic soda—evaporators, concentrators, settling tanks, flash and storage tanks, flakers, filters, heat exchangers, condensers and tank cars. Purity of product is maintained all along the line.

Specify Lukens Clad Steels—Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad—and gain similar advantages and economies. For additional data, write for Bulletins 255 and 338. Lukens Steel Company, 455 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

★

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

• • SPEED SCRAP TO THE MILLS TO MAKE MORE STEEL • •

PROGRESS IN METALS

by W. L. Nelson
Consulting Engineer

Gray Cast Iron—Engineering Material

GRAY iron properly used is a valuable engineering material. For its proper selection and use one must have a knowledge of the relationship between its composition and properties. Some helpful information on this subject was given in a paper on "Section Size, Hardness, Composition Relationship in Gray Cast Iron," by R. S. McElwee, before the Society of Automotive Engineers at a recent meeting. In this paper McElwee reviewed the effects of various elements—particularly carbon and silican—encountered in gray iron. He pointed out that until quite recently it is believed that carbon was incapable of close control. However, it has been found that carbon level can be quite closely controlled, and also that higher carbon levels have many advantages, including lower shrinkage and higher deflection. With proper adjustment of silicon, higher carbon level can also produce any reasonable strength and hardness.

Careful selection of carbon and silicon can easily effect economies of manufacture, both in the machine shop and the foundry. Higher tool carbon involves higher graphitic carbon, which is responsible for better performance in applications involving heat resistance and wear resistance. In addition, by using high total carbon compositions the plastic or freezing range is shortened. And by narrowing this freezing period many casting difficulties, such as the possibility of microporosity, are eliminated. At the same time, the same matrix structure and hardness can be obtained at the higher carbon level as with lower carbon, provided silicon is adjusted properly in the opposite direction.

Because of an existing specification on Brinell hardness, it is sometimes difficult to substitute the more advantageous higher carbon unless the engineer is willing to modify Brinell hardness specifications. To indicate the fallacy of attempting to regulate the performance of an iron with respect to wear on the Brinell basis, an example is given. The iron used for this example, which was 4.00 total carbon, showed a Brinell hardness of 146, yet the microhardness of the pearlite between the graphite particles fell in the range of 226 to 255. This latter value is the load-carrying value of the iron.

While this type of iron will show greater deformation under concentrated loads, it is an excellent material in those cases in which the unit pressures are well below the limit at which deformation begins. Records of high-graphitic irons show many times the life, in resisting wear, of lower-graphitic irons of the same matrix structure.

An abstract from Materials and Methods of August 1948.

Nickel Alloys Excel In Corrosion Fatigue

UNDER conditions of repeated stress, metallic materials fail at loads far below the regular tensile strengths of the materials. The allowable stress under repeated stress conditions is called the endurance or fatigue limit. Likewise, the allowable stress in the presence of a corrosive fluid and under conditions of repeated stress is called the corrosion fatigue limit. The approximate endurance and corrosion fatigue limits of steel, nickel, and Monel metal are:

	Condition	Endurance limit 10^8 cycles, psi. in air	Apparent corrosion fatigue limit 10^8 cycles, psi. in fresh water	in brackish water
Carbon steels		25,000-42,000	16,000-24,000	6,000- 8,000
Nickel	Annealed	33,000	21,000-24,000	20,000-22,000
	Cold worked	50,000	21,000-24,000	20,000-22,000
Monel	Annealed	36,000	21,000-24,000	27,000-28,000
	Cold worked	50,000	21,000-24,000	27,000-28,000

Nickel versus Chromium Plating

BOTH nickel and chromium plates are applied to give protection against corrosion. In some cases either is satisfactory, but in other cases one is to be preferred over the other.

Nickel is better for resisting corrosion fatigue and also for resisting fretting corrosion. Of many combinations investigated, the best results with lubricated surfaces were found with a pair of materials of which nickel was one. Hard materials in general appear to produce corrosion debris under such conditions. As a matter of fact, chromium gives a very bad performance.

Chromium shows a great superiority in regard to mechanical wear. Its coefficient of friction is very much lower than that of nickel. Care has to be taken to see that the contacting surfaces are well lubricated. As chromium is not wettable, it has no capacity for absorbing oil. Much research has been done on means of chromium plating cylinders to reduce the wear and at the same time to provide a wettable surface. One example of this is the well-known "porous chromium" process.

The easiest method is that used by Rolls-Royce on the Merlin airplane and tank engines. The top third of the bore is plated with a thin deposit of ordinary hard chromium, while the rest of the cylinder is untreated. The rate of wear of the unplated portion is reduced because of the absence of the abrasive material which, in untreated liners, is torn from the top of the cylinder and tends to increase the wear towards the bottom of the stroke. The unplated portion takes care of the lubrication of the plated portion. As a result, the life of the liner is increased about 10 times.

An abstract of papers by R. E. Wilson, Metal Industry (English), March 12 and 26, 1948, taken from the July issue of Materials and Methods.

Forging Terms or Operations

Forming

As used in the forge shop this operation applies to the pressing of plastic (hot) metal into shape, usually with the aid of forms or dies. Such forms or dies are illustrated by forging rolls, steam presses, forging presses, hydraulic presses, bulldozers, coining presses, or sizing presses. Forming is used to shape large pieces such as boiler heads or in shaping bar stocks.

Upsetting

This operation involves the building up of metal at some point by shortening the piece through axial compression, as in "heading" articles such as bolts or nails.

Such equipments as bolt-heading machines, upsetting machines, nail machines, or resistance butt welders are used.

Lavaca Offshore Gas Pipe Line

LAID ON TEXAS COAST

At the seaward end of the 13-mile offshore Lavaca pipe line, piles were driven by dragline, mounted on L.S.T. boat, under direction of Sammy Collins, Continental Construction Co.

by Paul Reed

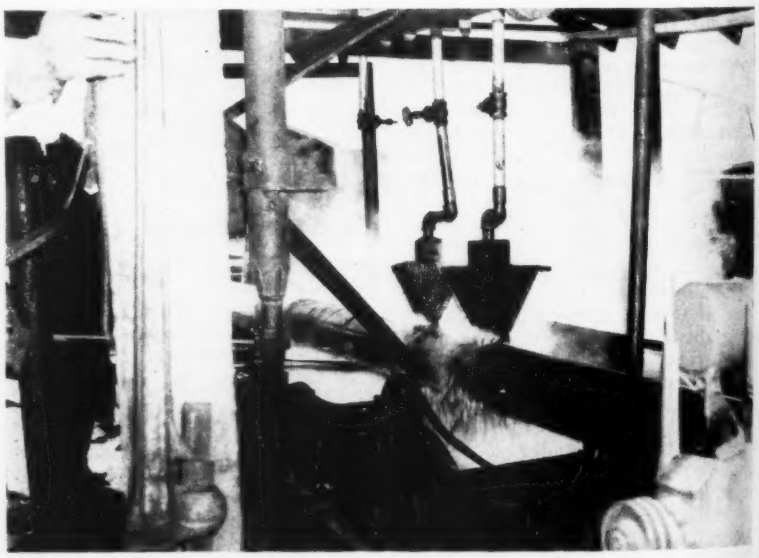
WHILE the methods for laying Lavaca Pipe Line Co.'s offshore line have been planned particularly for meeting conditions in Matagorda Bay on the lower Texas Gulf Coast, they represent a type of basic procedure which is adaptable, with certain modifications, for pipe-line construction to wells farther offshore in deeper water. Attention is being drawn to this project for those who are concerned with planning for offshore operations.

The Lavaca Pipe Line Co. project consists of 13 miles of 8⅝-in. line for transmitting natural gas from Matagorda field, in Matagorda Bay, to the plant being built for Aluminum Co. of America in Calhoun County, Texas, at a location northeast of Port Lavaca. Lavaca Pipe Line Co., a wholly owned Alcoa subsidiary, has contracted the laying of the line with Continental Construction Co. Control equipment is being laid out and installed by Maintenance Engineering Co. In working out gas requirements, Alcoa has been assisted by Petroleum Consultants.

This article was obtained as the result of a trip by launch to construction operations in Matagorda Bay. The author procured information with the assistance of Sammy Collins, vice president and superintendent, Continental Construction Co.; E. E. Gillinwater, construction superintendent, Aluminum Co. of America; and G. T. Moore, Maintenance Engineering Co.

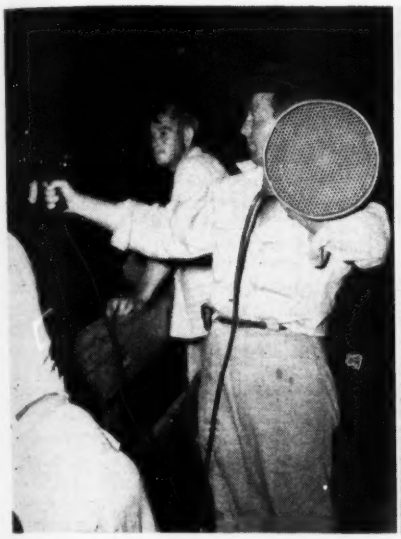
The gas transmitted through the system will be used as fuel for 120 radial, vertical-shaft two-cycle spark-fired Nordberg gas engines, each driving a vertical generator developing 1,100 kw. These radial gas engines—believed to be the first in the world for industrial use—have been planned for power generation at costs which will compare favorably with cost of hydro-electric power. The electric power generated at the Lavaca plant will be used for the reduction of powdered alumina to metallic aluminum.

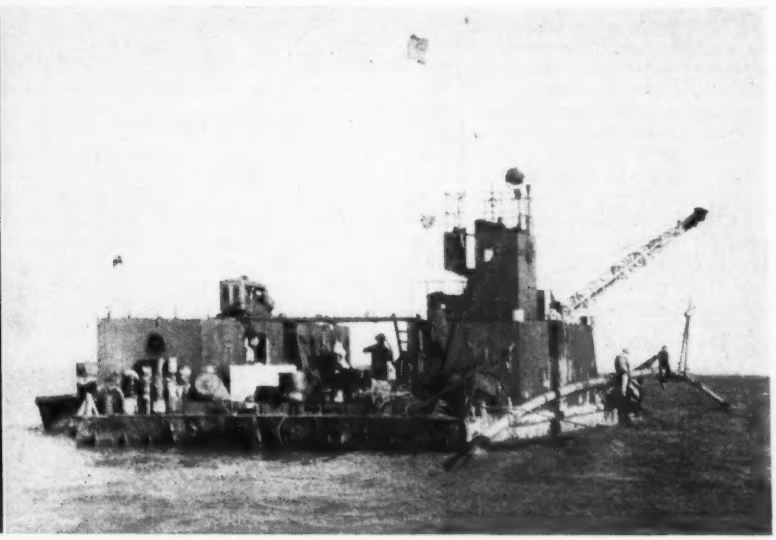
The principal features of this submarine construction are: (1) Yard coating and wrapping; (2) welding of



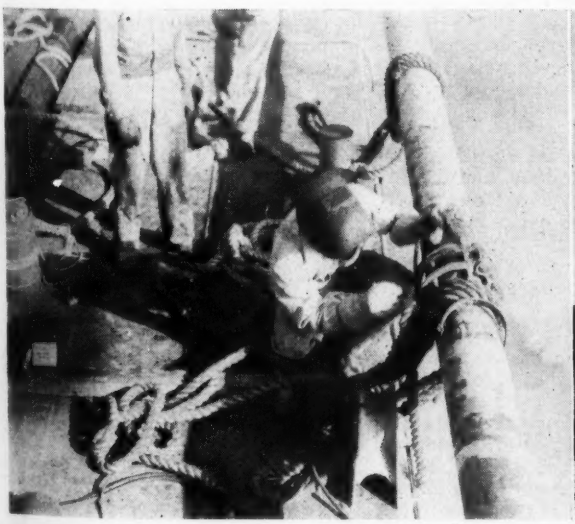
Glass-mat wrapping applied between two coatings of coal-tar enamel in yard operations prior to welding 1,000-ft. sections

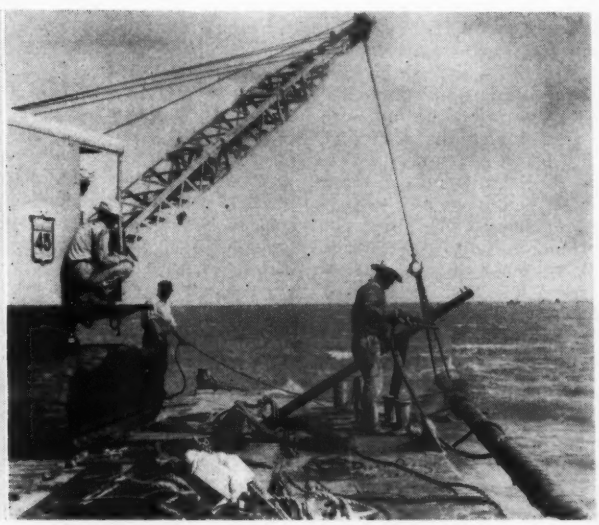
Left: Five 1,000-ft. welded sections of 8⅝-in. pipe are moved from sills to dollies, resting on wooden tracks, in the fabrication of 5,000-ft. sections, to which pontoons and 1,000-lb. river clamps are attached. Right: Tugs in the distance towing 5,000-ft. section seaward. Wooden dollies are gathered by rowboat for reuse





Left: Launching operations directed by contractor's superintendent using naval-type signal light and public-address system. By carrying on most of the launching operations at night it is possible to take advantage of early morning calm-water conditions for the seaward installation of the 5,000-ft. section. Right: Clamping rear end of newly fabricated 5,000-ft. section to forward end of the part of the line which has been previously laid





Left: On the deck of the L.S.T. boat, welder prepares for making the weld to finally join new section to existing line which is held by external line-up clamp. Right: Preparing to cast off the pipe line from L.S.T. boat after completion of welding

pipe in 1,000-ft. sections on sills; (3) joining of five 1,000-ft. sections into a 5,000-ft. section on dollies placed on launching tracks; (4) towing 5,000-ft. section and welding it to the part of the pipe line already laid.

Rigging up the yard and launching ways started July 9. Laying of pipe for the project started July 18 at a point on the shore near the plant site and it has been extending steadily seaward toward the meter platform being built in Matagorda field. Gathering lines of 4 and 6-in. connect the wells with the meter platform manifold.

Coating and wrapping of pipe for the submarine project has been done by Rosson-Richards Co. at a yard on the shore near the launching tracks. These protection operations consist of applying two consecutive coats of coal-tar enamel followed by a wrapping of glass mat, a third coating of enamel, a second wrapping of glass mat, and a final wrap of kraft paper.

Since 10 per cent of the seamless pipe barged to the project from Pittsburgh is in 20-ft. lengths, it has been necessary to do some double jointing in order that 40-ft. joints may be uniformly handled in the fabrication of the 1,000-ft. sections. Welding has been contracted by McKinney Brothers Welding Works.

Preparations for Launching

The construction procedure is to truck 40-ft. joints of coated and wrapped pipe from the Rosson-Richards yard to the launching ways where they are welded in 1,000-ft. sections by position welding.

In order to take advantage of calm water prevailing in the early morning, preparations for launching have been carried on largely during the preceding night. In welding 1,000-ft. sections to form 5,000-ft. sections, the pipe rests on dollies placed on launching ways consisting of 4-by-4 tracks greased with tallow. The 1,100-lb. river clamps are attached to the pipe at intervals of three per 1,000-ft. section. Pontoons are also attached while the pipe is on the launching ways.

The pontoons are 55-gal. oil drums which are fastened snugly to the pipe by lashings which can readily be cast loose. There are four pontoons at each river clamp. The other pontoons are placed on the pipe so that they are approximately 40 ft. apart. A special type of buoy is also used to mark the location of untested welds.

Hydraulic pressure of 1,000 lb. is applied to each section on the skids.

As each 1,000-ft. section is added in forming a 5,000-ft. section, tugs tow the pipe seaward. Two or three tugs have been used in the handling of the long sections.

All launching operations have been directed by the superintendent, Sammy Collins, at night with the use of a public-address system and colored signal lights.

In towing 5,000-ft. sections seaward at a slow speed it has been observed that the pipe tows along a route which is exactly that of the course followed by the tow boats. Depth of the water along the route does not exceed 15 ft. Launching of 5,000-ft. sections has taken approximately 5 hours. Towing to location has taken 2 to 5 hours with the use of three 225-hp. tow boats.

Lining up the rear end of the 5,000-ft. section with the seaward end of the line already laid is done by pulling the ends together with a Coffing hoist, and applying a Tipton outside-clamp. The pipe is capped at both ends so that the water cannot enter the pipe. The weight of the pipe plus anchorage causes the pipe to sink.

For the welding operations, the pipe is held above the water by means of an outrigger at the stern of a converted L.S.T. boat and by the boom of a drag line extending beyond the bow of this boat. Interval between outrigger and dragline supporting cables is 150 ft. Unlashing of buoys to let the pipe sink usually takes about 3 hours.

The pipe line is equipped with insulating flanges. Cathodic protection will be given by two installations of magnesium anodes; one installation on at the shore end of the line and the others at the meter platform.

Gas for the project is to be gathered from five wells (probably more later) which are grouped in an area approximately 2 miles in diameter.

Each well has approximately 2,100 lb. shut-in pressure and is to be equipped with a high-pressure reducing regulator mounted directly on the christmas tree flow wing. This regulator will serve to hold an intermediate flow-line pressure of approximately 800 lb. from each well to a control station located centrally to all wells. A small auxiliary regulator at each well will provide additional safety by shutting in the main regulator in event of a flow-line break. In addition, each well is equipped with a storm choke in the tubing. Scrubbers and regulators for obtaining dry, low-pressure pilot supply will be installed at each well. All equipment at the well will be set inside the nest of piling which surrounds the christmas tree, and flexible connections will enable the christmas tree, pilings, and flow line to move independently of each other with wind and wave action.

Control and Metering

A central control and measurement station will be set on a platform built several feet above normal water level. Flow lines from each well to this central station come in at one end of the platform and are tied in through individual 4-in. meter runs to a 12-in. header. This header discharges into the 8-in. transmission line leading across the bay to the plant site. All meter runs are in parallel and the entire layout is made as compact as possible to conserve space. An adjustable choke ahead of each meter run provides a means of regulating delivery from individual wells and each meter run contains a quick-change orifice fitting, check valve, and such block valves as are necessary to isolate individual lines. The pilings at one corner of the platform are carried several feet higher than the main platform and will support a small structure which will house the meters and temperature recorders in order that these instruments may be protected as much as possible from waves and wind.

At the Alcoa plant site, a control station including an oil and gas separator, reducing regulators, and master meter run will take the incoming gas at transmission-line pressures of approximately 500 lb. and deliver at the required plant system pressure of approximately 200 lb.

Cotton Valley Field Gas Reservoir

(Continued from page 64)

two tests are made to provide a check. From the measured liquid hydrocarbon and gas volumes the gas-liquid hydrocarbon ratio is calculated. No test is considered correct unless it can be checked within 2 per cent by another test.

Through use of the portable equipment extensive field tests were continually made to check the displacement efficiency and dry-gas pattern. For convenience in converting results obtained by the portable equipment into per cent wet-gas, conversion curves were developed. These curves (see Fig. 2) are based on tests of several wells which included low-temperature fractional-distillation analysis of composite samples of gas and liquid collected during gas-condensate-ratio tests. These samples had been recombined in the proportions of the respective observed gas-condensate ratios.

Condensate Decrease With Pressure Decline

If the reservoir remained under constant pressure during an entire cycling operation, one curve showing the relation existing between the small-scale separator, gas-condensate ratio, and per cent wet gas would be satisfactory. At Cotton Valley, the reservoir pressure does not remain the same. Liquid and gas withdrawals are made, while at the same time there is negligible water influx, thus permitting a slight decrease in reservoir pressure.

When curve 1 of Fig. 2 was developed, the reservoir had an average pressure of 3,020 psi. By September 1947 the pressure had declined to

2,880 psi. Thus, while a normal 100 per cent wet gas well at the time cycling started has a ratio of approximately 17,000 cu. ft. gas per barrel of liquid hydrocarbons, this gradually rose to 19,200 as the pressure declined. The second curve was drawn by coordinating it to the first, but cutting the 100 per cent wet-gas ordinate at a point of 19,200 along the abscissa. In similar manner curve 3 for a reservoir pressure of 2,800 psi. was drawn. The final result was a family of curves which permits correlation of small-scale separator tests to the per cent wet gas, although there is a constant change in content because of increasing retrograde losses within the reservoir.

After the field tests were completed, a map was prepared which showed outside limits of the dry-gas front. Table 1 shows a series of calculations in which the first factor, "surface area swept," is obtained by planimetering the dry-gas map. Weighted thickness of the swept area is obtained by planimetering and calculations based upon an isopach map.

The three main points brought out in the present table of data are that the present displacement efficiency is 87.8 per cent, the pattern efficiency is 66 per cent, while the over-all present instantaneous cycling efficiency is 58 per cent. It is probable that continued displacement efficiencies in the order of 87 per cent can be expected.

The next step was prediction of what ultimate pattern efficiency could be expected. In lieu of following a mathematical analysis procedure, advantage was taken of results actually obtained by field tests. The basis for this graphical method is shown in Fig. 3, "Relation of Time, Injection Rate, and Well Position to Rate of Dry Gas Encroachment."

A potentiometric model was built and set up for use in predicting ultimate maximum efficient patterns that might be expected. By calculating future production and injection rates, using open-flow-capacity curves and bottom-hole-pressure history as a guide, it was possible to secure sufficient information to make potentiometric model forecasts for future time periods. These forecasts (see Figs. 4 and 5) show a very satisfactory check between actual and predicted results to date.

TABLE 1—CALCULATION OF CYCLING EFFICIENCIES, BODCAW SAND, AS OF JUNE 1, 1948

1. Equivalent surface area swept (from map showing dry-gas front), acres	9,437
2. Weighted thickness of swept area (From isopachus map), ft.	30.4
3. Volume of swept area, acre-ft.	286,885
4. Weighted average porosity of area, per cent	16.2
5. Interstitial water content, per cent	25.4
6. Pore space within area bounded by dry-gas front, M.M.c.f.	1,510
7. Weighted average pressure of gas in dry-gas area, psi.	2,870
8. Reservoir temperature, °F.	236
9. Supercompressibility factor at reservoir conditions	0.915
10. Pressure base of gas measured at injection, psia.	15.025
11. Temperature base of gas measured at injection, °F.	60
12. Volume of gas injected into reservoir, M.M.c.f.	216,676
13. Volume of injected gas which has been produced, M.M.c.f.	8,720
14. Volume of injected gas left in reservoir, M.M.c.f.	207,956
15. Volume of injected gas in reservoir at reservoir conditions, M.M.c.f.	1,325
16. Volume of gas contained within area bounded by dry-gas front, M.M.c.f.	236,744
17. Displacement efficiency (No. 15 divided by No. 6 or No. 14 by No. 16), per cent	87.8
18. Volume of initial gas reservoir M.M.c.f.	2,292
19. Pattern efficiency at present (No. 6 divided by No. 18), per cent	66
20. Present instantaneous cycling efficiency (No. 17 multiplied by No. 19), per cent	58

TABLE 2—COMPUTATION OF PREDICTED ULTIMATE ECONOMIC CYCLING EFFICIENCY, BODCAW SAND

(Based on present production and injection plans)

1. Equivalent surface area probably swept by 1952, acres	14,277
2. Weighted thickness of swept area, ft.	24.2
3. Volume of swept area, acre-ft.	345,503
4. Pore space within area bounded by dry-gas front, M.M.c.f.	1,843
5. Predicted average pressure of gas in dry-gas area in 1952, psi.	2,700
6. Supercompressibility factor at reservoir conditions in 1952	0.912
7. Volume of gas injected by 1952, M.M.c.f.	247,230
8. Volume of injected gas which will have been produced, M.M.c.f.	16,700
9. Volume of injected gas left in reservoir in 1952, M.M.c.f.	230,530
10. Volume of injected gas in reservoir at reservoir conditions, 1952, M.M.c.f.	1,562
11. Volume of gas contained within area bounded by dry-gas front, 1952, M.M.c.f.	272,025
12. Volume of initial gas reservoir, M.M.c.f.	2,292
13. Predicted ultimate pattern efficiency, 1952 (under present production and injection plans), per cent	80
14. Maximum economic ultimate pattern efficiency (by improving drainage in west end of reservoir), per cent	85
15. Displacement efficiency, per cent	87
16. Ultimate economic cycling efficiency, per cent	74

Acknowledgement

Appreciation is expressed to the general manager, Evan A. Thomas, and members of the Cotton Valley Operators Committee for permission to publish this article; and to T. W. McGuire, consultant; M. G. Miller, consultant, and M. R. Lents, Old Ocean Oil Co., for providing basic ideas and plans. J. M. Coffield provided valuable assistance in making potentiometric model studies.

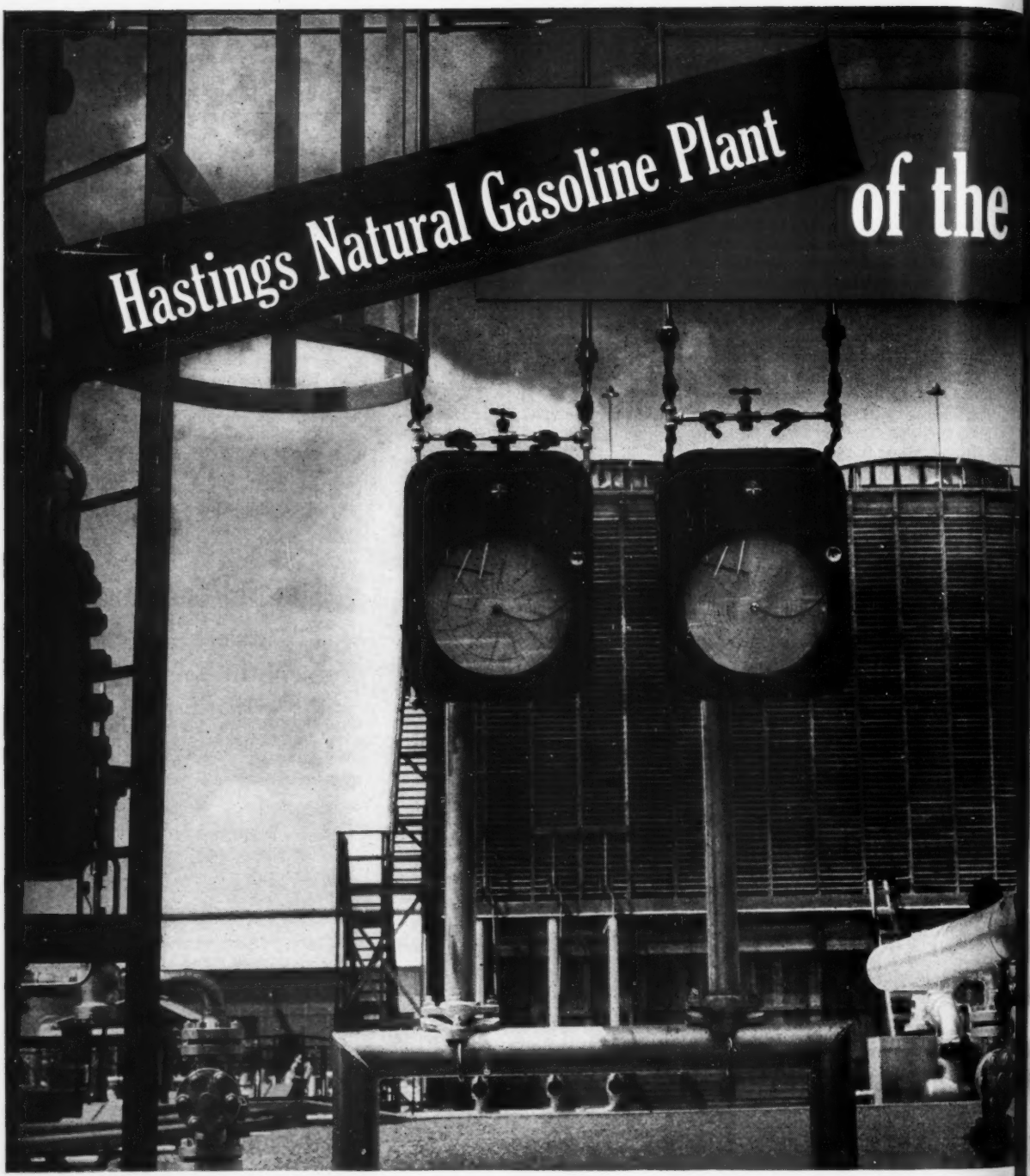
Lion Oil Catalytically Processes Sour Gas Oil

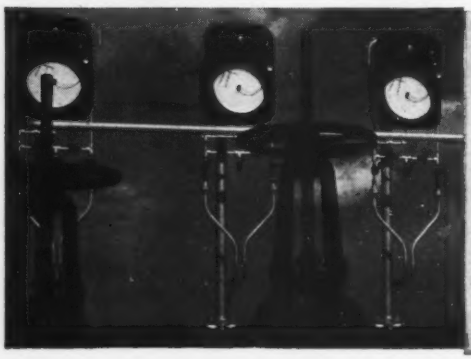
(Continued from page 72)

The hot catalyst elevator, kiln air blower, and principal feed and product pumps are driven by steam turbines. In the event of a power failure, the T.C.C. unit proceeds in operation

"Ye gads, Buddy, that ain't what we mean around here by pullin' rods"

Hastings Natural Gasoline Plant of the

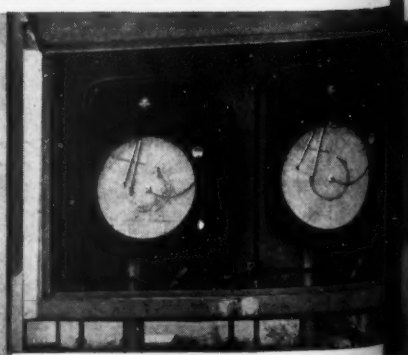




TOP: Dry gas overhead from absorbers

LEFT: Ahead of Compression. Three field mains equipped with Metric Orifice Meters deliver into a header

RIGHT: Twin Metric Orifice Meters on a Hastings lease. One for measuring wet gas from field gathering system, the other for dry gas used in field operations



Stanolind Oil and Gas Company

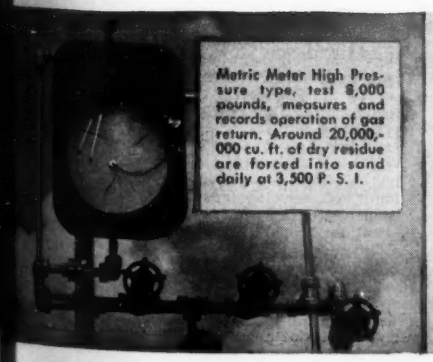
HAS INSTALLED HIGH PRESSURE METRIC ORIFICE METERS

Gas cycling and maintenance operations at the Hastings Plant call for pressures varying from slight vacuum for rich or wet gas to 3,500 P.S.I. when dry gas is pumped into the wells for gas lift and conservation purposes.

Efficient operation of this plant with a daily throughput of 35,000,000 cu. ft. calls for measuring instruments of highest accuracy and dependability.

Metric Orifice Meters are effectively serving the exacting requirements of this plant at Hastings. The California Company's Lake St. John and Cranfield Plants; Shell's Sheridan Plant; Humble's Katy, Tom O'Connor, Anahauc, Clear Lake Plants, and others are demonstrating the suitability of Metric Orifice Meters for high pressure applications up to 5,000 P.S.I.

WRITE FOR FULL INFORMATION


Metric Meter High Pressure type, test 8,000 pounds, measures and records operation of gas return. Around 20,000,000 cu. ft. of dry residue are forced into sand daily at 3,500 P. S. I.

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

Albany • Atlanta • Baltimore • Birmingham • Boston • Chicago • Dallas
Denver • Erie • Houston • Joliet • Kansas City • Los Angeles • New York
Odessa • Orlando • Philadelphia • Pittsburgh • San Francisco • Tulsa

very smoothly and already this foresight in planning has obviated many temporary shutdowns which would otherwise have occurred.

The catalyst used in the Lion T.C.C. unit is the synthetic-bead type. The normal catalyst inventory in the unit is about 225 tons and the initial charge of the catalyst had an activity of 42 by the Cat-A method. After the first year of operation, the average activity of the system has leveled out at about 31 Cat-A index. The performance of the catalyst in the unit is shown graphically in Fig. 3. It should be mentioned that during this entire period of operation no catalyst has been withdrawn from the unit and replaced with fresh catalyst for the purpose of maintaining average activity. In other words, the only catalyst usage has been that required to replace nominal mechanical losses due to attrition. The actual average usage from September 1947 to the present has been 0.7 tons per day which is equivalent to about 0.24 lb. per barrel of charge.

The Lion T.C.C. installation is composed of both new and used equipment with alloy-steel protection provided only at critical locations. The vapor superheater, tar separator, and the entire catalytic cracking section proper were new construction, and the remainder of the feed preparation, distillation, and recovery sections were parts of equipment previously operated in the refinery.

Some of the existing equipment which was revamped for T.C.C. service had already been provided with alloy protection for sour stock operation and, as previously mentioned, only the reaction zone of the T.C.C. unit was alloyed. An itemization of the major pieces of equipment and the extent and type of alloy employed is given in Table 4.

The unit was shut down on April 4, 1948, for a complete inspection and cleanup after 7 months' operation, during which time an onstream efficiency of 97 per cent was realized. That the offstream time to onstream time for the turnaround amounted to only 7 days is indicative of the excellent condition in which all of the equipment was found. A summarized report of the inspection is presented in Table 5.

It is noteworthy that no piping replacements were required because of metal loss from corrosion or erosion despite the fact that as indicated in Table 4 much of this piping was fabricated of carbon steel. For example, the vapor lines to and from the reactor are carbon steel. Undoubtedly, these lines operate at a temperature outside the critical range for corrosion by the Lion stocks. The significance of this experience, however, is that economies in the design of the Lion T.C.C. plant for sour-stock operation were realized by providing alloy protection at any critical locations.

TABLE 4—MAJOR EQUIPMENT AND TYPE OF MATERIAL

Item—	Material	Existing or added
Feed preparation:		
Vaporizing heaters	4-6% chrome tubing	Existing
Tar separator	11-13% chrome lining complete	Added
Tar separator bottoms lines	4-6% chrome pipe	Added
Tar separator vapor line and valves	Carbon steel	Added
Vapor superheater	2% chrome tubes—4-6% chrome heaters	Added
Vapor line to T.C.C. reactor and valves	Carbon steel	Added
Reactor:		
Reaction zone	11-13% chrome lining	Added
Reactor internal elements	18-8 stainless	Added
Reactor vapor outlet lines and valves	Carbon steel	Added
Synthetic-crude tower:		
Synthetic-crude tower	11-13% chrome lining in lower half—upper half carbon steel	Existing
Synthetic-crude tower piping	Carbon steel	Added
Exchanger	Carbon steel	Existing
Synthetic-crude tower overhead condensers	Carbon steel shell—Admiralty metal tubes	Added
Overhead receiver and gas separator	Carbon steel	Existing
Kiln:		
Kiln internals	Conventional 4-6% chrome air and flue gas distributors and collectors—2% chrome water tubes	Added

TABLE 5—CONDITION OF EQUIPMENT AFTER 7 MONTHS' OPERATION

Item—	Condition
Feed preparation:	
Oil charge lines and exchangers	Excellent—no metal loss
Vaporizing heater tubes	Excellent—no metal loss
Tar separator	Alloy lining good except for one broken strip weld
Tar separator bottom lines	Excellent—no metal loss
Tar separator vapor line	Good—no metal loss
Vapor superheater tubes	Good—no metal loss
Vapor line to reactor	Good—no metal loss
Reactor:	
Reactor shell	Excellent—alloy lining good except for six broken strip welds
Reactor internals	Excellent—no evidence of erosion or corrosion
Reactor vapor line and valves	Excellent—no evidence of corrosion
Synthetic-crude tower:	
Synthetic-crude tower	Tower clean—lining in good condition
Synthetic-crude tower piping	Excellent—no evidence of corrosion
Overhead condensers	Good—no fouling or evidence of sulfur attack on admiralty metal tubes or carbon steel shell
Overhead receiver	Good
Kiln:	
Suspended tile lining	Excellent—no erosion or spalling
Air and flue gas distributors	Excellent
Cooling coils	Good—very slight scaling on inside
Catalyst piping	Excellent—no replacement required
Hot-catalyst elevator:	
General condition	Excellent—indicated chain life 3 years
Traction rims	0.049-in. maximum wear
Chain links	0.0237-in. maximum wear
Chain knuckles	0.078-in. maximum wear

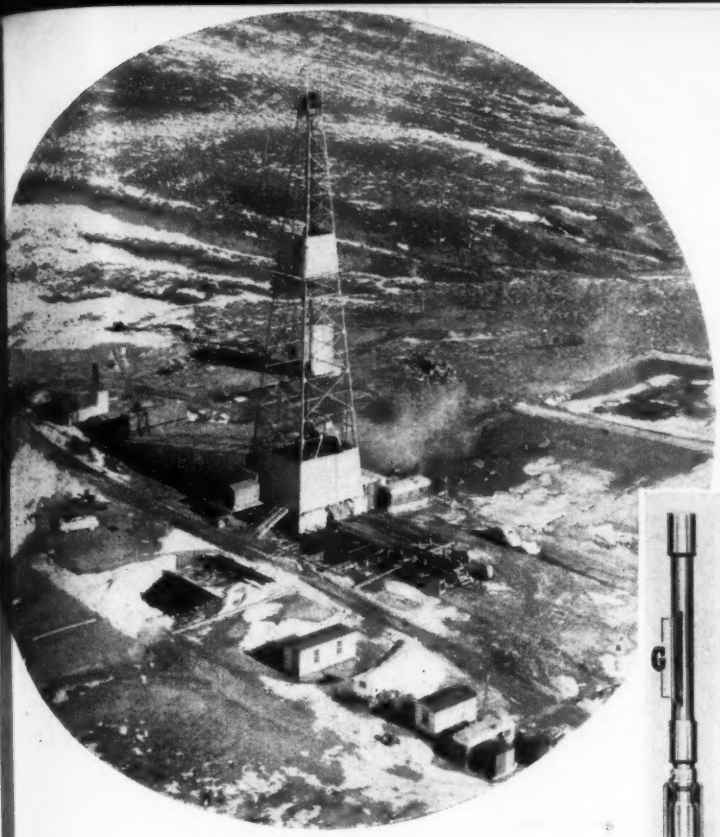
BOOKS

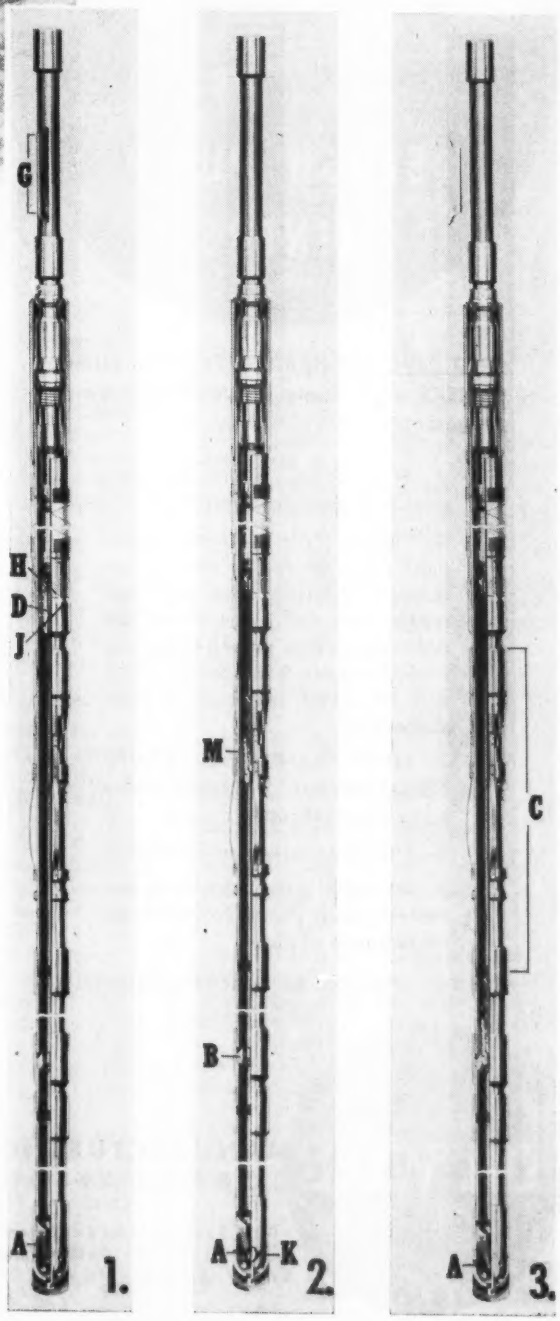
CONVERSION OF PETROLEUM. Second edition. By A. N. Sachanen. Published by Reinhold Publishing Corp., 330 W. 42nd. Street, New York. 602 pp. $11.

This volume has to do with production of motor fuels by thermal and catalytic processes. Progress in this field during the past 8 years, since the publication of the first edition of the work, has been great indeed. The development of catalytic cracking and alkylation was particularly spectacular. The capacity of catalytic cracking increased from 100,000 to 1,000,000 bbl. of charging stock per day. The capacity of alkylation, fostered by the exigency of war, rose from 10,000 to 130,000 bbl. of alkylate daily. Conversion of petroleum gas into motor fuel, via the Fischer-Tropsch process, is another far-reaching development being commercialized at the present time. Development of thermal cracking was less spectacular, although the polyforming process must be considered as one of the most important achievements in manufacturing motor fuels. Other developments of minor importance for motor-fuel production, such as catalytic isomerization, hydroforming, dehydrogenation were commercialized. As a result of these important developments in the industry, according to the author's preface, the need for thoroughly revising the first edition of the work to include this new material became a necessity. Conversion of petroleum gases into motor fuel and catalytic cracking are discussed in special chapters, newly written. Other chapters were revised and supplemented by new materials and data.

EARLY DAYS OF OIL. By Paul H. Giddens. Published by Princeton University Press, Princeton, N. J., 149 pp. $6.

Largely a pictorial history, Early Days of Oil traces the progress of a new industry from the time Samuel M. Kier of Pittsburgh bottled petroleum from his father's salt wells to sell as medicine and later as an illuminant called "carbon oil" a full decade ahead of Edwin L. Drake's discovery near Titusville, Pa., in August 1859. Captions and a few descriptive notes by Giddens only supplement the pictorial record of John A. Mather who started chronicling oil development in the fall of 1860 with photographs of developments and personalities engaged in producing, refining, and transporting oil. The Titusville fire in 1892 destroyed over 16,000 of his negatives but about 3,000 were saved, out of which Giddens has selected 365 for this book. Probably no other industry has a comparable pictorial record of its beginnings.





Above: The new deepest oil well, Pure Oil Co.'s new discovery on 16,000-acre Wyoming block. Right: Three steps in setting liner. Labeled items are discussed in text

New Liner-Setting Method Used in World's Deepest Producer

by Leigh S. McCaslin, Jr.

A METHOD of setting liners which was devised in an effort to save casing for the industry, has seen successful use in the world's deepest producing well in Natrona County, Wyoming—Pure Oil Co. 1 West Poison Spider.

"Multiple plug liner-cementing method" is the name given this new procedure by its originators, Brown Oil Tools, Inc., Houston. On the 14,309-ft. Pure test, the entire liner assembly was 550 ft. long.

The Pure discovery is located 28 miles due west of Casper and in the center of a 16,000-acre block of leases held by the company. Going on production June 3, the well flowed 902 bbl. daily of green 44°-gravity crude with a low sulfur content.

Location for the world's deepest producer was made only after 3 years of geological and geophysical work by Pure. The pay zone—which is 120 ft. thick in the 1 West Poison Spider—is Frontier sand. This is the same formation that produces in the neighboring 21,000-acre Salt Creek field which to date has produced more than 320 million barrels of crude.

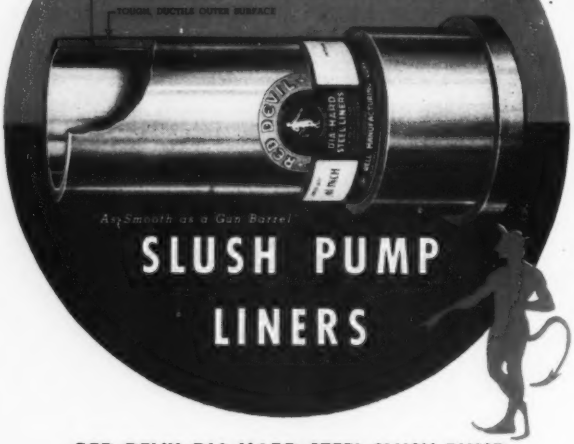
Five-Inch Liner at 13,791 Ft.

At the time the liner was run in the 1 West Poison Spider, 7-in., 35-lb. casing had been set at 13,791 ft. The liner assembly used consisted of a 9.75-ft. packer, 4.4-ft. hanger, and 535.95 ft. of 5-in. o.d., 15-lb. liner with 5⅜-in. collars. Hence, total length of the liner assembly was 550.1 ft.

The packer was set at 13,642.51 ft.

Red Devil

DIA-HARD STEEL



SLUSH PUMP LINERS

RED DEVIL DIA-HARD STEEL SLUSH PUMP LINERS have many outstanding advantages.

1. FORGED from high grade alloy steel and specially HARDENED.
2. PRECISION HONED to a perfect finish that provides an abrasion resisting inner surface which greatly increases liner and piston life at high drilling pressures. Honing is the only method that assures precision straightness and round liner bores to exact dimensions.
3. LINER GLAND FORGED INTEGRALLY with liner. No glands to work loose—no fluid cutting.
4. Uses standard type rubber sleeves.
5. Available in any size bore for any make of slush pump. Proper length for any type of piston.

WRITE FOR LITERATURE OR SEE COMPOSITE CATALOG

OIL WELL MANUFACTURING CORPORATION

6000 South Alameda Street
Los Angeles 1, California
Cable Address "OWMCO"

"Varec" approved Internal Safety Valve, Fig. No. 507, with Flanged Connections.
ESSENTIAL FOR Safe STORAGE
Cutaway view of "Varec" approved Internal Safety Valve, Fig. No. 506, with Screwed Connections.

"VAREC" *Approved* INTERNAL *Safety* VALVE

Here's a safety device that automatically closes the flow into or from your tank in case of external fire exposure. It consists of a spring-loaded valve that is held in normal open position by a fusible link. On contact with fire, the link melts and instantly closes the valve to insure a positive shutoff.

This same valve can be adapted to other operations. With slight modifications, it can be connected to an air cylinder and be operated from a remote position with compressed air. It can also be manually operated.

Standard construction is cast steel with bronze trim or all bronze. Available in other materials on special order. Complete range of sizes from 2" to 18". "VAREC" Engineers will be pleased to assist you in the specification of these safety devices and other accessory tank equipment.

Free Engineering Handbook—write today on your letterhead for a copy of the VAREC P-7 Handbook and Catalog.

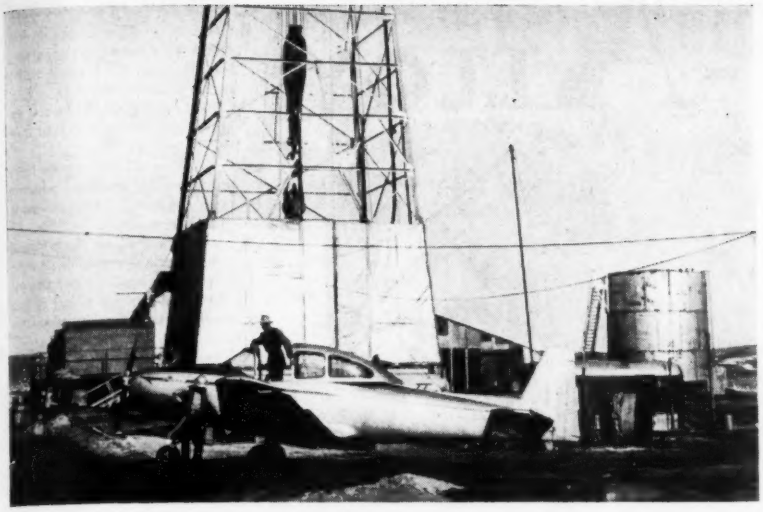
CP-2

"Varec"

THE VAPOR RECOVERY SYSTEMS COMPANY
COMPTON, CALIFORNIA, USA

NEW YORK 30 CHURCH STREET | CLEVELAND 1501 EUCLID AVE. | CHICAGO 111 SO. MICHIGAN AVE. | TULSA 713 MAYO BUILDING | HOUSTON 6TH M. & M. BLDG.

CABLE: VAREC COMPTON (All Codes)



Technical personnel and critical replacement parts were flown to the world's deepest producer while drilling was under way. This four-place Navion plane operated by Dick Reed, Inc., has just delivered a 400-lb. crankshaft to the well. The charter plane service is a Casper, Wyo., partnership of Richard W. Reed and Carl Potter

and the hanger at 13,648 ft. Location of landing collar was 14,154.89 ft. and orifice shoe 14,187 ft.

Displacement data on the job are:

	Bbl.
Calculated volume to top of liner	62.5
Calculated volume of liner	11.5
Total	74.0
Halliburton displacement:	
To top of liner	64.0
To landing collar	9.5
Total	73.5

Details of Method

The method used in setting the liner can best be explained in conjunction with the accompanying drawings. An orifice shoe shown schematically at "A" is used on the lower end of the liner, and a landing collar "B" is spaced as far above the shoe as necessary. The liner is interposed between the landing collar and the liner hanger as shown at "C."

With the liner suspended in the slips, the hanger is made up in the conventional manner. The packer, with its setting tool secured and equipped, is picked up as a unit and made up to the top of the liner hanger. The drill pipe can then be made up in the upper end of the setting tool.

At "D" in the drawing there is a liner plug, attached to the setting tool, in addition to the usual inverted swab-cup assembly. This is fastened to the setting-tool stem with shear pins "H." The liner plug is made of synthetic rubber and is equipped at "J" with a buttress thread on its inner bore and an external buttress slip on its lower end.

No back-pressure valve, as such, is incorporated in the liner string. In its place, an orifice-type cementing shoe, "A," has been provided. The orifice through the inner member of the shoe, shown at "K," is of sufficient size to allow the liner to fill up as rapidly as it can be run. This inner member, "K," is made of a synthetic rubber material. It is provided with suitable orifice inserts and will act as a back-pressure valve when the flow velocity is exceeded by a greater than normal running-in speed.

Mud Condition Regulated

The orifice-type cementing shoe is provided to more nearly assure that the liner and drill pipe will be full of properly conditioned mud. In addition, by allowing the liner and drill pipe to fill up from the bottom, the velocity of flow past the outside of the liner hanger and packer is reduced. This should provide greater assurance of satisfactory operation of all tools when the liner is landed.

The liner may be run in the hole and hung at any desired point where the hanger will engage the intermediate string. The setting tool releases the right-hand rotation; left-hand release should be specified for the hanger. After the liner hanger has been set, the "running-in string" may be released by right-hand rotation. After the setting tool has been released, the drill pipe is picked up 12-18 in. to make sure that the tool is released from the liner. About five points of weight can be set on the liner at this time without damage to either packer or setting tool. It is recommended that this weight be held on the liner during cementing operations.

Cementing Next

Next step is to pump cement into the drill pipe. After sufficient quantity has been pumped to securely cement the liner in place, the pump down plug shown at "G" is dropped into the drill pipe through the cementing head. This plug is dropped at the top of the slurry. At the lower end of the dropping plug there is a hardened bronze slip ring with upwardly facing buttress teeth. The plug will follow the cement down the hole, and hence marks the top of the slurry at all times.

As pumping continues, the pump-down plug contacts with the liner plug. When this happens the slip ring on the pump-down plug engages with the buttress teeth inside the liner plug as shown at "M," and the two plugs engage to form a seal. This fact can be noted on the derrick floor by an increase on the pressure gage. The pressure increases until the shear pins "H" have been broken. This takes approximately 750 psi. pump pressure over circulating pressure. After the pins have sheared, the two plugs move down inside the liner forcing the cement ahead of them.

A second check on displacement measurement is obtained when the plugs bump the landing collar at "B." This causes a considerable increase in pump pressure to indicate that the cementing operation is complete.

When the two plugs contact with the landing collar they latch in to it through the action of the slip ring at the lower end of the liner wiper plug. This latching together acts to form a back-pressure valve to prevent return flow of the cement when the pump pressure is removed.

At this point, the setting tool is picked up 5 or 6 ft. and lowered again to set the packer and the hold-down slip. Raising the drill stem another 8-10 ft. lifts the setting tool out of the packer and allows the operator to reverse circulation and pump excess cement out of the hole.

Richfield Leaving Permian Basin Area; Sells Leases

Richfield Oil Corp. has announced its intention of withdrawing entirely from the West Texas-New Mexico area. Pursuant to this decision it is offering to sell to the highest cash bidder all of its oil and gas leases on some 66,000 acres of undeveloped lands, grouped in seven separate tracts, concentrated principally in prospective drilling blocks in the Permian Basin of West Texas.

At a later date the company expects to sell in the same manner, its holdings on approximately 315,000 acres of undeveloped lands in southwest New Mexico. Notice inviting bids and describing the West Texas parcels have been released and sealed bids are to be publicly opened at Richfield's office in Midland, Tex., on December 1.

TRIMO-ALLOY

INDUSTRY'S BIG, TOUGH, ALL-ALLOY STEEL

PIPE WRENCH

DROP FORGED

Whatever size Trimo-Alloy Pipe Wrench you need, buy and use, you get "oversize" power and durability—because it's the only wrench on the market that is entirely made of drop forged alloy steel. The teeth are hardened by modern induction heat-treatment—and the whole wrench is tough in the right places to stand tremendous stress. Trimos are the most powerful wrenches ever built for industry. Put them to work wherever other wrenches are found wanting.

TRIMONT MANUFACTURING CO.
DIVISION OF AETNA INDUSTRIAL CORP.
61 AMORY STREET, ROXBURY, BOSTON 10, MASS.

EVERY PART IS GUARANTEED

- Trimo Alloy Pipe Wrenches are made to exceed Government Specifications.....Type II Heavy Duty.....GGG-W-651a.
- Only Trimo Pipe Wrenches are manufactured throughout from alloy steels.
- Only Trimo Wrenches have teeth hardened by modern induction localized heat-treating process to close Rockwell specifications.
- Tests prove Trimo drop-forged steel handle capable of bearing strains up to 40,000 inch-pounds — more than double that of cast malleable handles in same size wrench.
- Trimo's frame design is on the efficient "knee-action" principle — making possible one-hand use on otherwise two-hand jobs.
- Replaceable lower jaw saves buying complete new handle after the wear of extended use.

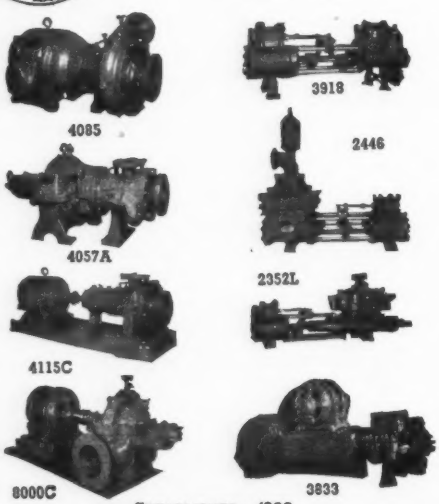
TRADE TRIMO MARK

Pipe Wrenches • Chain Wrenches • Monkey Wrenches • Stillson Type Wrenches • Spud General Utility Wrenches • Saunders, Barnes and Other Type Pipe Cutters • Pipe Vises, Chain Vises • Saw Vises • Kit and Portable Vises

PUMPS

CENTRIFUGAL
RECIPROCATING

BUILDERS OF OUTSTANDING PUMPS
Since 1869



ESTABLISHED 1869

DEAN BROTHERS PUMPS INC.
INDIANAPOLIS IND.
323 W TENTH ST.

OPPORTUNITY FOR

Experienced Oil Field Service Personnel

Field Superintendents
Sales Engineers
Perforator Operators

Outstanding opportunities to become associated with a young and progressive organization which pioneered the development of the jet process of casing perforation and other applications of the jet method. Welex Jet Services, Inc., is the owner and licensor of these processes throughout the world. We are now expanding our field service division and are opening several new stations to better serve the oil industry.

Applications for employment from qualified oil field personnel are solicited. Those accepted will enjoy the security of key positions now and rapid advancement in our expanding field service division.

Write or phone Welex Jet Services, Inc., 3909 Hemphill St. (Phone 4-3247), Fort Worth 9, Texas.

JOURNAL-*Guide* TO

Arch Field

Matagorda County, Texas

AMONG the more promising new producing areas in the Texas Gulf Coast is that discovered in August by Rowan Oil Co. and Texas Gulf Producing Co. 1 Guy F. Stovall.

The area is in northwest Matagorda County about 5 miles east of Midfields field. A second well has been completed in the field, Rowan and Texas Gulf Producing's 1 Kountze, and two others are drilling, Johnston & Johnston 1 Stovall and Texas Gulf Producing and Rowan's 1 Olive Nester.

The discovery well tested three sands in the Frio and is now producing its special 140-bbl. daily discovery allowable from the middle sand through perforations from 6,364-66 ft. The 1 Kountze was completed in a fourth shallower sand with perforations at 6,242-44 ft.

Major acreage in the area is held by the discovery operators. Other holdings, in order of size, are by Johnston & Johnston, Southwestern Oil & Refining Co., Crown Central Petroleum Corp., Skelly Oil Co., and Houston Oil Co. of Texas. Rowan Oil is the operator, and the affiliated Rowan Drilling Co. does drilling for the Texas Gulf Producing and Rowan interests. At present oil is being trucked from the field by Eastern States Petroleum Co., Inc.

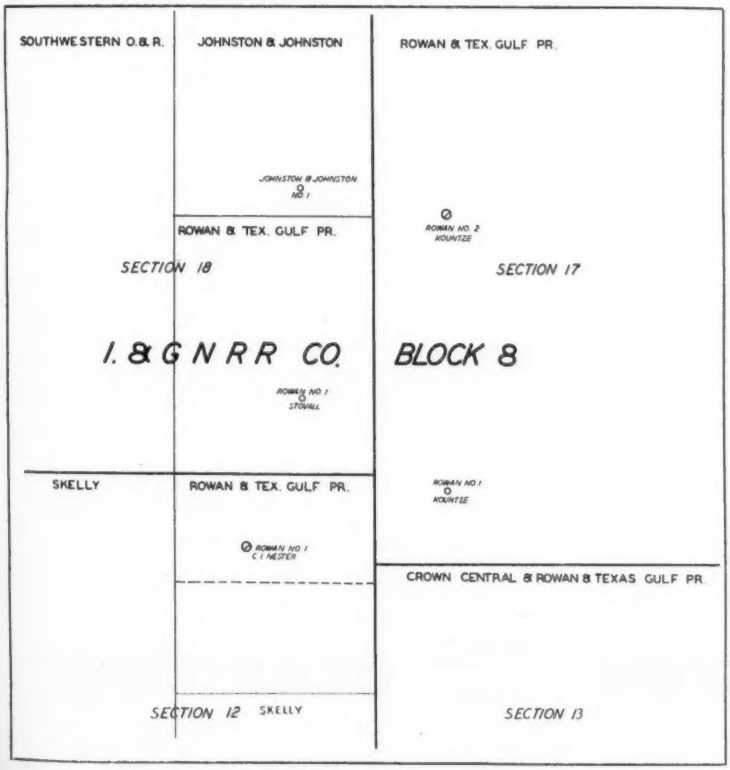
Drilling in the area is rapid and without any special problems such as those resulting from water or high-pressure gas formations. Approximately 800 ft. daily can be averaged through the broken sand and shales, although progress is slowed by some hard sands and limestone streaks encountered below the coring point at about 6,300 ft. The discovery well was spudded July 9 and the rig released August 31. The hole was taken to a total depth of 8,760 ft. with considerable coring.

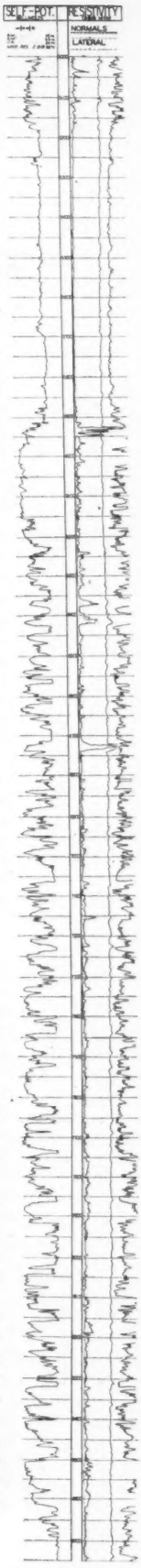
On both the discovery well and the 1 Kountze, 14-in. surface hole was cut, and 9⅞-in. for the oil string. This is being reduced to 8⅝-in. in the Olive Nester well. In the discovery well, 10¾-in. surface pipe was set at 1,600 ft., and cement circulated. The oil string was 5½-in. with cement brought back to 3,800 ft. Surface pipe was set at 1,000 ft. in the Kountze and Nester wells.

Both rigs now drilling in the area are steam, although either steam or power would be suitable. Rowan Drilling is using its No. 3 steam rig for all its operations in the area. Gas fuel is available from a Houston Pipe Line Co. line several miles to the south, but operators are hoping for a local supply later.

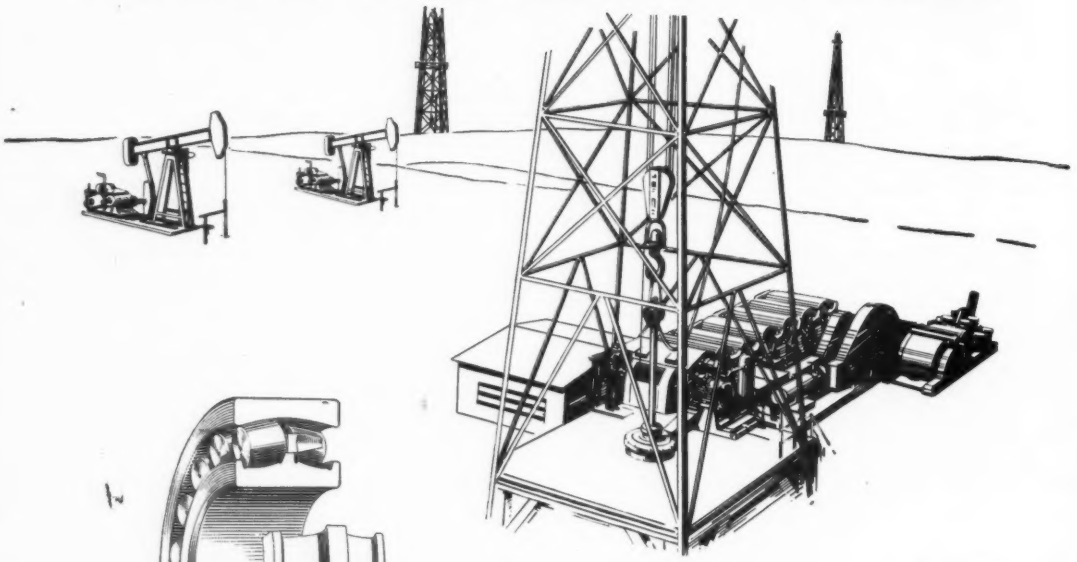
Drilling in the field is on a footage plus day-work basis. The operator prepares the location, supplies water, fuel, mud, and cement. Substructure and derrick are supplied by the contractor.

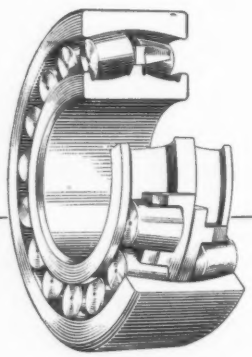
Below: Ownership map showing development to date in Arch field of Southwest Texas. Right: Electric log 6,000-8,760 ft. TD of 1 Stovall (discovery well)





For Rugged day-in, day-out Performance of Oil Field Equipment Count On Torrington Spherical Roller Bearings





. . . high radial capacity of these self-aligning roller bearings is an important advantage in oil field equipment.

All around the oil field—in drilling rigs, slush pumps, unit pumpers, draw works, transmissions, rotary table drives and other equipment—Torrington Spherical Roller Bearings contribute to improved performance and longer service life under the most rugged conditions.

Here are some of the specific benefits you receive from the use of these heavy-duty anti-friction bearings. High radial capacity. Reduced power consumption and higher speeds. Self-alignment. Axial stability of shafts for proper meshing of gears. Close tolerances that protect oil seals and assure efficient lubrication.

Whether you are building new equipment or making replacements, you can always count on Torrington Spherical Roller Bearings. You can count, also, on our impartial advice in helping you select *exactly* the right bearing for your needs—based on Torrington's years of experience in designing and building *all major types* of anti-friction bearings. Call or write the nearest Torrington office.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.
District Offices and Distributors in Principal Cities

TORRINGTON *SPHERICAL ROLLER* **BEARINGS**

SPHERICAL ROLLER · TAPERED ROLLER · STRAIGHT ROLLER · NEEDLE · BALL · NEEDLE ROLLERS

ENGINEERING *fundamentals*

Gas-Oil Ratio as a Criterion Of Reservoir Performance

THE producing gas-oil ratio is often used as an indication of the efficiency of the oil-producing process and the increase of the ratio is looked upon as a danger signal in the control of a reservoir's performance. The present discussion is concerned with some of the theoretical aspects of a changing gas-oil ratio and its indication of producing efficiency.

It has been pointed out that at the cessation of production the area under the curve of gas-oil ratio versus cumulative production is equal to the total gas which was available. A greater ultimate production will be obtained, therefore, in proportion to which the gas-oil ratio curve is kept at low values. Since gas gives the producing energy in all reservoirs excepting those where water drive is active, oil cannot be produced without some attendant gas. The problem is to keep the attendant gas at a minimum value at any one time. The pertinent question becomes an evaluation of what minimum can be attained in any particular circumstance.

Consider the internal-gas-drive reservoir. As oil is produced from the reservoir, the space that it occupied is taken over by an equivalent gas volume. The presence of gas within the reservoir decreases the ability of oil to flow and increases the ability of gas to flow. After a certain minimum gas saturation (about 10 per cent) has been exceeded, the ease with which gas will flow has increased to such an extent that it flows concurrently with the oil. As additional oil is produced, gas saturation increases continually, increasing even more the ease of gas flow until eventually the flow stream is practically all gas.

Quantitatively, this change is expressed by the relative permeability ratio k_g/k_o. This term increases logarithmically as oil saturation decreases (or as gas space increases). In other words, a unit of oil requires more gas moving concurrently with it in order to be produced as production progresses.

Continually Increasing Quantity

According to this concept the gas-oil ratio within the reservoir is a continually increasing quantity. Such is the case. Fig. 1 shows typical curves of producing gas-oil ratio (surface) and reservoir gas-oil ratio. The producing gas-oil ratio goes through a maximum because of the gas compressibility factor.

The behavior where a free gas cap exists is very similar. The gas cap performs two functions: (1) it permits a slower decline of reservoir pressure upon withdrawal of oil because of its cushioning effect, and (2) it provides additional gas energy for displacement of oil. Obviously, these functions are performed to the extent that the gas cap is preserved. If reservoir conditions permit the expansion of the gas cap within the reservoir without discharging it through the oil zone, the full use of the energy can be obtained. If conditions do not permit the expansion of the gas cap with segregation of fluids, the maximum use of energy is attained by discharging the gas through the oil zone. The gas cap gas in this situation gives an effect equivalent to that of additional solution gas without the attendant increased oil shrinkage.

Where gas-cap gas is bled through the oil zone, the gas-oil ratio must increase just as with an internal gas drive because the gas saturation again increases with oil withdrawals. Since more total gas is available when a gas cap exists, the area under the curve of gas oil ratio versus cumulative will be greater. This will mean both a greater cumulative and a higher gas oil ratio, the latter resulting from the additional vacated oil space. Fig. 2 is a comparison of ratios with and without a gas cap.

It is, therefore, an inherent result of the displacement of oil by gas that the gas oil ratio increase as oil is produced. The rate of climb and the maximum gas oil ratio are determined by the individual fluid characteristics and the existence of a gas cap. The increase does not mean necessarily an inefficient use of the gas present. Inefficiency is present only when the increase of gas oil ratio is faster than the ideal process requires. Since it is inherent within the process, there is no manner of reducing the gas-oil ratio unless another means of displacement is invoked.

Of course, there can also be an increase of gas-oil ratio by the discharge of gas-cap gas without passage through the oil zone. This is not a result of the gas-displacement process and can be controlled by mechanical means. Such an increase is additive to that discussed above.

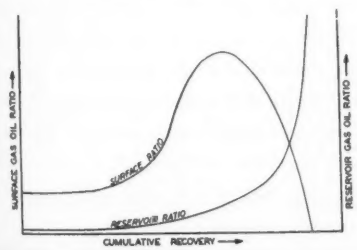


Fig. 1—Manner of variation of surface and reservoir gas-oil ratios

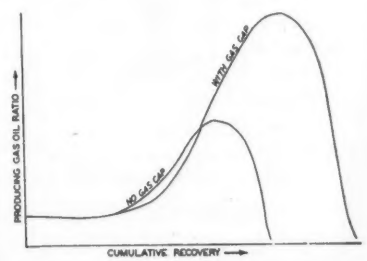


Fig. 2—Variation of gas-oil ratios with and without presence of gas cap

Series by Dr. John C. Calhoun, Jr., Chairman, Petroleum Engineering School, University of Oklahoma

AUTOMATICALLY CONTROLS TEMPERATURE OF LIQUIDS OR AIR

for **LOW COST TEMPERATURE CONTROL**

POWERS
FLEXIBLE TUBING
TEMPERATURE ADJUSTMENT Many 60° F. ranges available
BUILT TO LAST
UNSURPASSED FOR DEPENDABILITY and LONG LIFE
CONTROLS HEATING or COOLING MEDIUMS
THE POWERS REGULATOR CO
THERMOSTATIC BULB
VALVE SIZES ¼" to 6" incl.

In Crude Oil
SEPARATORS HEATERS TREATERS

Cooling Water for DIESEL and GAS ENGINES and AIR COMPRESSORS

Also WATER HEATERS FUEL OIL HEATERS HEAT EXCHANGERS CONDENSERS

Use

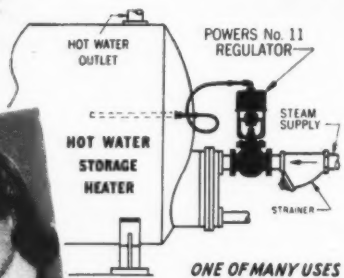
POWERS

No. 11 REGULATORS

Self-Operating • Easy To Install

Simplify your temperature control problems with Powers No. 11 Regulators. They prevent over-heating—save steam and labor—work for only 2 to 3¢ a 24 hour day—often give 10 to 25 years of dependable control with practically no maintenance. Just the regulator for many processes or applications requiring a constant temperature. Phone or write for circular and prices.

Regulator can be supplied with Dial Thermometer—a feature pioneered by POWERS back in 1930.



ONE OF MANY USES

11B

CHICAGO 14, ILL., 2720 Greenview Ave. • NEW YORK 17, N. Y., 231 East 46th Street
LOS ANGELES 5, CAL., 1808 West Eighth Street • TORONTO, ONT., 195 Spadina Ave.

THE POWERS REGULATOR CO.

OFFICES IN 50 CITIES • SEE YOUR PHONE BOOK

Over 55 Years of Temperature and Humidity Control

Cost-imating

A WEEKLY FEATURE OF THE OIL AND GAS JOURNAL

Construction Steel

COST INDEXES, 1946 = 100

	Steel*	Refinery construction† Overall	Mat.	Labor
1924	90	78	87	60
1926	80	73	80	58
1928	77	72	78	57
1929	82	71	76	59
1930	71	65	68	57
1931	68	61	63	57
1932	65	56	60	48
1933	69	57	61	49
1934	74	59	62	55
1935	75	62	64	58
1936	77	64	66	60
1937	92	69	71	65
1938	91	67	67	67
1939	88	69	68	68
1940	88	70	70	69
1941	88	75	77	71
1942	88	80	80	79
1943	88	85	85	87
1944	88	86	85	90
1945	91	90	88	94
1946	100	100	100	100
1947	117	117	115	119
1948 est.	140	151	149	154

*U. S. Department of Commerce, Statistical Abstract of the United States—average of plate and structural forms. †Cost-imating, October 21, 1948.

Enormous amounts of steel are used in the petroleum industry:[7]

1 ton per daily barrel refining capacity.

5 tons per 1,000 bbl. storage.

735 tons tubular products per million barrels of crude production.

Although carbon steel is basically worth only 2 or 3 cents a pound, the costs of rolled, fabricated, pierced, etc., products are higher and the costs used by some estimators are shown in the tabulation on this page. The prices were converted from the years 1929, 1931, 1946, and 1948 by using the cost indexes also shown here.

In arriving at most of the costs given here, the cost estimators have merely divided the total cost by the pounds of material. Such a procedure includes many hidden or unforeseen costs of mismanagement, delays, handling costs, waste, etc., and thus it sometimes is difficult for the novice or layman to see why the costs are as large as they are when the base price of steel is low.

References

1. Happel, Aries, and Borns, Chem. Eng., Oct. 1946, p. 99.
2. Author's files (1927-1948).
3. Bliss, H., Chem. Eng., May 1947, p. 126.
4. Fox, Lyle E., Chem. Eng., Aug. 1947, p. 100.
5. Bummerstedt, E. F., Economic Design of Pressure Vessels, Nat. Pet. News.
6. Davis & Terry, The Oil and Gas Journal, Jan. 1931.
7. Esso Oilways, Vol. 1, No. 2, 1948.

COST OF CONSTRUCTION

Kind of steel or service—	Unit	1946 costs (see indexes) M.	L.	M. & L.
Mill, structural	ct./lb.	2.32	...	...
Plate	ct./lb.	2.47	...	...
Composite	ct./lb.	2.68	...	...
Vessels, cylindrical, without connections:				
500 lb. weight[1]	ct./lb.	30-50	4.0	34-54
1,000 lb. weight[1]	ct./lb.	25-40	3.5	29-43
5,000 lb. weight[1 2]	ct./lb.	20-30	2.2	22-32
10,000 lb. weight[1 2]	ct./lb.	15-25	1.5	*16-27
20,000 lb. weight[1 2 5]	ct./lb.	10-20	0.8	*11-21
50,000 lb. weight[1 2 5]	ct./lb.	8-15	0.6	*8-16
Field fabricated	ct./lb.	12	8.5	21
Tanks,† A.P.I. flat-bottom cone-roof fabricated and erected:[4]				
10,000 lb. weight (300 bbl.)	ct./lb.	3	35	28
12,500 lb. weight (700 bbl.)	ct./lb.	3	20	23
25,000 lb. weight (1,400 bbl.)	ct./lb.	3	15	18
55,000 lb. weight (4,500 bbl.)	ct./lb.	3	11	14
115,000 lb. weight (13,000 bbl.)	ct./lb.	3	8	11
200,000 lb. weight (25,000 bbl.)	ct./lb.	3	7	10
Forgings—nozzles, flanges, manholes[1]	$/lb.	...	...	0.50-1.00
Pipe-still bends,[2] **1½-in.**	$/lb.	...	...	1.15-1.38
Pipe-still bends,[2] **6-in.**	$/lb.	...	...	0.32-0.38
Stacks, guyed in place[2]	ct./lb.	14	3.5	17.5
Breeching connection to stack[2]	ct./lb.	30	11	41
Galvanized iron,[2] **22-24 ga., corrugated**	ct./lb.	8-9	4-5	12-14
Condenser boxes, fabricated[2]	ct./lb.	...	...	7-9
Reinforcing, for concrete[2]	ct./lb.	3.7	1.7	5.4
Structural steel, exposed[2]	ct./lb.	7	5	12
Pump houses[2]	ct./lb.	8-9	2-3	10-12
Pipe stills[2]	ct./lb.	9-10	3-4	12-14
Small parts[1]	ct./lb.	8-13	2-6	11-18
Handrails, platforms, ladders, etc.[2]	ct./lb.	...	...	12.5
Pipe—pipe lines[6]	ct./lb.	4.7-5.3	...	...
Butt and lapwelded (in piping)[1 2 3]	ct./lb.	‡5-7	...	...
Spiral welded[3]	ct./lb.	8	...	...
Seamless or tubes[1 2]	ct./lb.	¶7-10	...	...

*Bliss[3] shows 9 cents per pound for material. †Add 5 per cent for full penetration welding, also 5 per cent for nonstandard dimensions. ‡Add 10 per cent for waste. ¶Add 2.5 per cent for each foot past a length of 24 ft.

No. 3 in a series by W. L. Nelson, professor of petroleum refinery engineering, University of Tulsa

DRILLING RESEARCH, INC.

An Industry-Wide Drilling Research Project

This is an invitation to each interested party to participate as a stockholder in the new, non-profit group, DRILLING RESEARCH, INC., recently organized to investigate improved drilling methods looking, particularly, to finding better methods of sinking holes in the earth than represented by present practice.

CHARTERED in the State of Delaware July 19, 1948, DRILLING RESEARCH, INC. has a present membership in excess of twenty companies.

PARTICIPATION in this research program is open to any individual, company or corporation interested in reducing the cost of drilling wells.

FINANCING of the research program will be accomplished from a fund of $750,000 available for expenditure during the first three-year period. Each stockholder in DRILLING RESEARCH, INC. will pledge to the fund a payment for the *three-year* period not in excess of $150.00 per net well drilled per year by it, the "net wells drilled per year" being defined as the average number of net wells drilled during the years 1945, 1946 and 1947. This program has a minimum pledge fixed at $5,000 and a maximum at $60,000 for each stockholder. Shares in DRILLING RESEARCH, INC. will not be offered for sale after December 31, 1948, except to eligible companies formed after that date. All contributions made to DRILLING RESEARCH, INC., including any income from the sale of licenses, will be used to meet expenses of the research program. The stock in DRILLING RESEARCH, INC. is non-dividend bearing and will not in any case return to the owner more than the amount of cash contributed by them or it.

DEVICES or techniques developed as a result of the research program may be used by stockholders without payment of royalty. Non-stockholders may use such improved devices or techniques through payment of royalties to Drilling Research, Inc.

PERSONNEL required to carry on the research program will be obtained through the employment of either a competent Director of Research with a carefully selected staff, or existing research institutions utilizing manufacturing plants and present laboratory facilities to minimize or eliminate investment of the research funds in capital items.

As a producer, your immediate attention is solicited.

ADDRESS INQUIRIES TO:

DRILLING RESEARCH, INC.

Box 1248 ● Bartlesville, Oklahoma

OIL and GAS EQUIPMENT Digest

THE OIL AND GAS JOURNAL

offers this "Check It" service for the convenience of its busy readers who realize the need to keep informed on the many items of new or improved equipment that are continually being introduced.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary if Mailed in United States

BUSINESS REPLY CARD
Permit No. 3A, 510 P. L. & R., Tulsa, Oklahoma

THE OIL AND GAS JOURNAL
BOX 1260
TULSA, OKLAHOMA

Postage Will Be Paid by Addressee

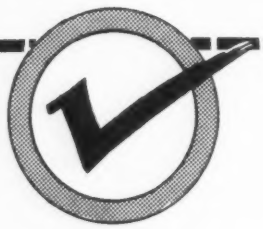
No Postage Stamp Necessary if Mailed in United States

BUSINESS REPLY CARD
Permit No. 3A, 510 P. L. & R., Tulsa, Oklahoma

THE OIL AND GAS JOURNAL
BOX 1260
TULSA, OKLAHOMA

KEEP INFORMED!

this EASY way



SAVE TIME

TEAR OUT CARD

CHECK IT

MAIL IT

THE OIL AND GAS JOURNAL

offers this "Check It" service for the convenience of its busy readers who realize the need to keep informed on the many items of new or improved equipment that are continually being introduced.

Keep informed on what is new in equipment that will work for increased efficiency and lower costs in your operations. *Save Time* by using only one card to get information on every item of interest to you. *Tear Off* the card below. *Check It. Mail It.*

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20)
(21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40)

For further information—without obligation—I have checked numbered circles above

Corresponding to new equipment items or trade literature abstracts in the Oil and Gas Equipment Digest of The Oil and Gas Journal, Nov. 4, 1948

PLEASE PRINT

COMPANY NAME .....

STREET ADDRESS .....

CITY ..... **ZONE NO.** ..... **STATE** .....

NAME ..... **TITLE** .....

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20)
(21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40)

For further information—without obligation—I have checked numbered circles above

Corresponding to new equipment items or trade literature abstracts in the Oil and Gas Equipment Digest of The Oil and Gas Journal, Nov. 4, 1948

PLEASE PRINT

COMPANY NAME .....

STREET ADDRESS .....

CITY ..... **ZONE NO.** ..... **STATE** .....

NAME ..... **TITLE** .....

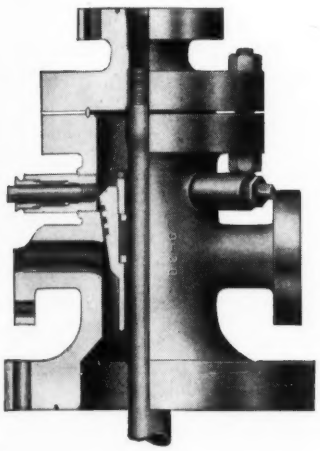
No Postage Required

OIL AND GAS EQUIPMENT Digest

IT'S NEW CHECK IT

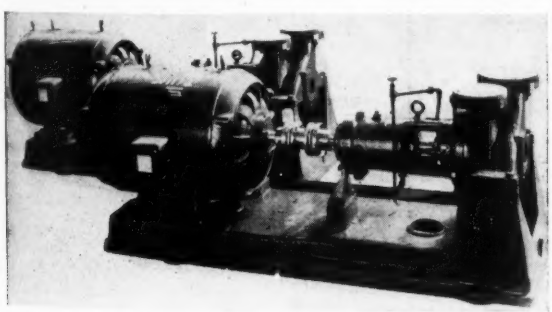
by Craig Espy

(1) BREWSTER TUBING HEAD is specifically designed for use in dual-completion wells, or in wells where packer is set. May also be used on any well where absolute pressure protection is desired. Positive pressure-control system is provided by four locking screws set in barrel of tubing head. These engage mandrel-type seal to afford complete protection for well after completion. While tubing is run or well is being completed, pressure control is provided by blowout preventer. Designed for mounting on A.P.I. flanged casing heads, tubing head has full opening so that well may be serviced when necessary. It is made in 6,000 and 10,000-lb. tests. *Brewster Co.*



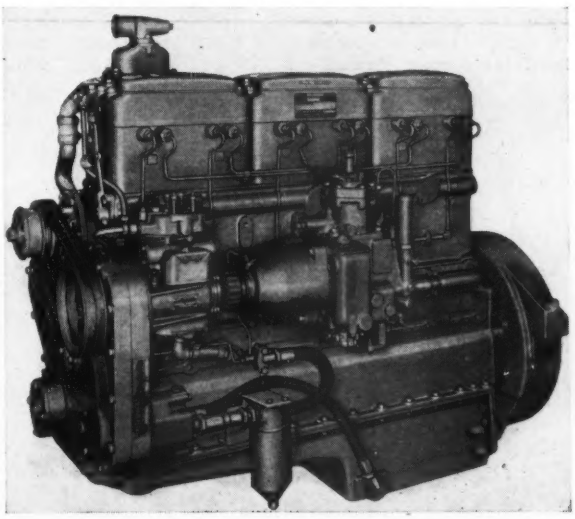
IT'S NEW CHECK IT

(2) EXTREME-TEMPERATURE-LIMITS PUMP. Single-stage and double-stage process pump will handle all hot oil, evaporator condensate, propane, butane, gasoline, organic fluids, hot well condensate, acids, etc. Support for pump case provided at the shaft centerline. As result, entire structure and component parts are free to expand and contract without disturbing alignment. Internal joint leakage and resultant corrosion are materially reduced since pumps have no internal case joints exposed to differential pressures. Pumps have vertically split cases. Stuffing-box design is extra deep, water cooled, provided with in-and-out sealing-oil connections, renewable throat bushings, and a quenched cowl-type gland. Whatever the temperature of the pump case, stuffing box will run cool. Pump is easily dismantled for inspection, instruction, maintenance. *Byron Jackson Co.*



IT'S NEW CHECK IT

(3) CUMMINS DIESEL ENGINE develops 10 per cent more horsepower or 165 hp. (maximum) at 1,800 r.p.m., with 5⅛-in. bore and 6-in. stroke. Piston displacement is 743 cu. in. Has four-stroke cycle and exclusive Cummins fuel system. Available in an automotive model, three industrial models, and a marine model. Manufacturer's dealers can field-convert former model to new model. *Cummins Engine Co., Inc.*

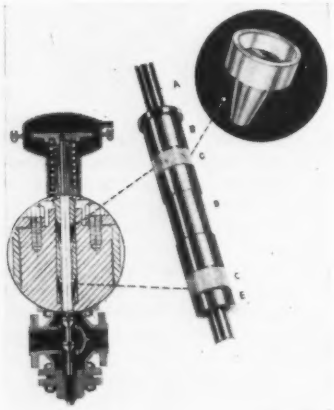


IT'S NEW CHECK IT

The Oil and Gas Equipment Digest presents a review of what is new in equipment and trade literature . . . makes it possible for readers to obtain full information on every subject by use of convenient "Check It—Mail It" service card. This periodic feature of The Oil and Gas Journal will include all that is new in equipment . . . at a time when new products are being introduced, and existing products improved.

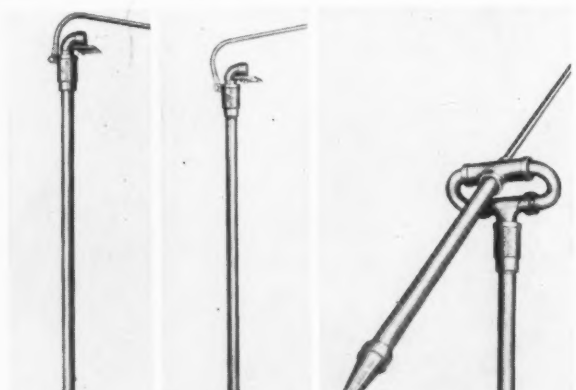
Keep Informed. Save Time. Tear Out Card. Check It. Mail It.

(4) DAHL-SEAL ELIMINATES PACKING BOX. Scientifically shaped inert plastic seal provides a frictionless, leakproof valve stem on control valve regardless of system pressure. Control valve stem is hermetically sealed by force of system pressure due to special shape of seal. It eliminates and replaces conventional packing box. No takeup or adjustment is necessary as it is inherently lubricated and is completely resistant to chemical attack. Valve stem can be positioned to an accuracy of 0.001 in. at full vacuum, atmospheric to 25,000 psi. *Hammer-Dahl Co.*



IT'S NEW CHECK IT

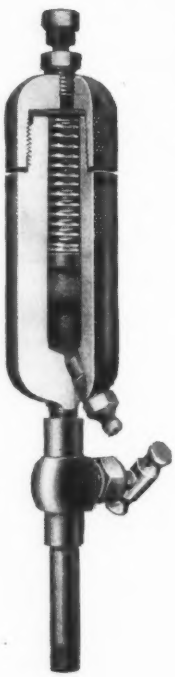
(5) MUD GUNS. Three new top and bottom-type mud guns are all-steel throughout. Unique thrust assembly in swivel holds gun on position when in use eliminating need for special locking devices and preventing "spinning." There are no packing glands to be adjusted and replaced. Nozzles contain replacement insert of eld metal. Fittings have 2-in. standard pipe threads. All parts are replaceable on job without requiring special tools. "Suction Pit" gun has single nozzle capable of swinging 300° to cover all points of pit. "Storage Tank" gun has double nozzle. "Super Mix" is top-type gun employed where large sumps and open pits are in use. *Oil Base, Inc.*



IT'S NEW CHECK IT

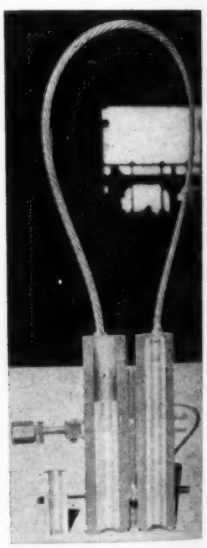
(6) IMPROVED RADIATION SURVEY METER features large 3-in. meter calibrated directly in milliroentgens per hour, which permits faster, more accurate readings to be made. Three scale ranges of 25, 250 and 2,500 milliroentgens per hour permit precise readings from well below tolerance dosage rate to values far above those normally encountered in most radioactivity laboratories. Batteries need be renewed only after approximately 1,000 hours of operation. A movable circular shield permits differentiation between beta and gamma radiation. Convenient pistol-grip handle and light weight of only 5 lb. permit a high degree of portability. *Tracerlab, Inc.*

IT'S NEW CHECK IT



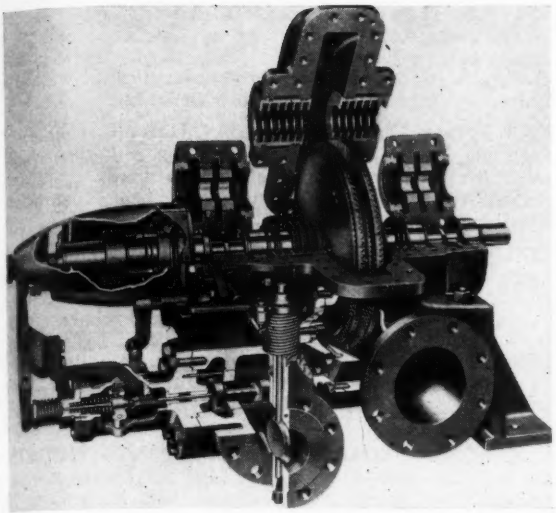
(7) AUTOMATIC BEARING-SHAFT LUBRICATOR offers solution to orifice-meter lubrication problems. Instrument sensitizes differential recording mechanism through continuous lubrication of entire bearing surface. With exclusive principle it is virtually impossible for measured gas or liquid to enter and cause deterioration of grease supply. Spring-loaded piston-and-cup mechanism provides positive sustained pressure upon grease supply, slightly in excess of measured gas or liquid pressure. One filling affords lubrication on new bearing shafts for period of 6 to 11 months. *John P. Squier Lubricator.*

IT'S NEW CHECK IT



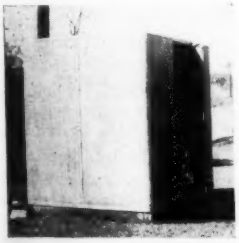
(8) WIRE-LINE TIGHTENER. New and improved tightener has simplified clamp design with two-hinged half shells. Shells house interchangeable brass liners through which drilling line passes as it is being spooled. As safety device, it eliminates use of catline while spooling the line after a cut is made. As a time saver, it permits free and easy drum spooling of the line. Strung free from the derrick a few feet above drum, tightener swings back and forth as line is spooled, preventing overlap and kinking. Clamp is 18 in. long and weighs approximately 68 lb. Liners, supplied in three standard sizes, will run approximately 6,000 ft. of line before wearing out. *Sunshine Iron Works.*

IT'S NEW CHECK IT



(9) WESTINGHOUSE TYPEE TURBINE. A choice of three wheel sizes, 16, 20, and 25 in., permits turbines to be applied over a range of 5 to 1,500 hp. with steam conditions up to 600 psig. at 750° F., and speeds of 1,000 to 7,000 r.p.m. Combination felt and labyrinth bearing seals protect lubricating system from contamination so that neither rain nor abrasive dust will affect its operation. Basic turbine is equipped with shaft-type governor mounted in a rugged casing that completely protects governor assembly and shaft end. Entire governor assembly can be replaced without disturbing the shaft. *Westinghouse Electric Corp.*

IT'S NEW CHECK IT



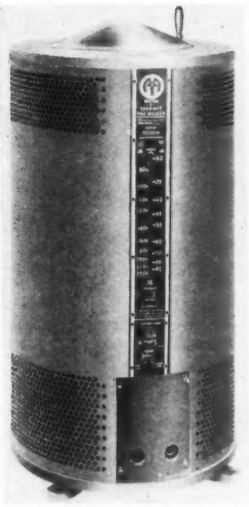
(10) ERECT-O-HOUSE. New all-purpose sectional steel housing suitable for field houses or machinery enclosures. Available in basic size of 6 by 6 ft. by 6½ ft. high. May be increased to any length in 3-ft. increments. Parts are of zinc-coated steel. Light-weight housing achieves rugged strength through patented method of assembly which places sheets under uniform tension between framing members. All components are accurately die-formed and can be quickly assembled by inexperienced labor using only standard hand tools. Rigid construction permits moving as a unit or it may be disassembled and reassembled for movement. *Petroleum Engineering Corp.*

IT'S NEW CHECK IT

(11) OUTDOOR HOT SURFACE ALUMINUM PAINT. Ready-mixed paint meets need for high heat-resisting, protective coating for use on outdoor boilers, steam pipes, smoke stacks, manifolds, engine heads, etc. Will resist heat up to 1,000° F., and will not blister and peel off when hard rains hit extremely hot surfaces. In laboratory tests Bunsen burner was kept burning for 6 months under steel panel painted with product. Panel was red hot and buckled from heat. Two or three times daily a hard stream of cold water was sprayed on panel for 30 minutes at a time. At the end of 6 months finish showed no signs of cracking, blistering, or peeling, and still retained its brilliancy. *Aluminum Industries, Inc.*

IT'S NEW CHECK IT

IT'S NEW Digest CHECK IT



(12) NEW LINE A-C AND D-C ARC WELDERS. The a.c. unit features include built-in power-factor corrector; fingertip, stepless current control; fan forced ventilation; wide current range; moderate open circuit voltage operation. Units are of transformer type, available in 150, 200, 300, 400, 500-amp. capacities. Units provide instant plug-in, plug-out of electrode leads by taper-type connector. The d.c. model features a one-dial simplified control panel. Running gear is available where portability is required. *Metal & Thermit Corp.*

IT'S NEW CHECK IT

(13) GERONIMO. In oilfield or refinery emergencies this will bring workmen down safely from high places in quickest time and with least effort. Device can be held in immediate readiness for guy-line descent. Illustration shows workman straddled on T-bar seat. By raising brake lever arm he is ready to descend. By bringing hand down he can slow down or stop at any point. Geronimo weighs approximately 16 lb. Is easily attached or removed from wire line by slip pin located on side. *Charlie's Machine Works.*

IT'S NEW CHECK IT

TRADE LITERATURE

(14) ASKANIA TURBINE AND ENGINE CONTROL. Twenty-eight pages. Free-hand diagrams show typical developments in control of turbines and engines. Material covers hydraulic relays, stabilizers, control of pressure and other controls. *Askania Regulator Co.*

(15) KINNEY VACUUM-TIGHT VALVES. Four pages on valve, which incorporates special bellows in place of usual stuffing box eliminating all leakage at valve stem. Exploded views show component parts. Operation information. *Kinney Mfg. Co.*

(16) SHAFER ROLLER BEARINGS. Twenty-six pages describe exclusive features of self-aligning roller bearing units with special reference to Microlock adjustment. Numerous pages of engineering data and information on bearing life and speed factors. *Shafer Bearing Corp.*

(17) PENFLEX FLEXINEERING. Two bulletins give technical data on flexible metallic tubing used with oil, gases, steam and volatiles. Well illustrated and data-filled. Suitable for three-ring binder. *Pennsylvania Flexible Metallic Tubing Co.*

(18) HACKNEY IRON AND STEEL. Twelve pages. Should help to determine particular needs for tank heads and tank accessories. Gives dimensional tolerances A.S.M. and A.P.I. standards for weld caps, manways and large-diameter steel plate pipe. *Hackney Iron & Steel Co.*

(19) CARE OF MANILA ROPE. Twelve page pocket-size bulletin suggests how to make rope wear and last longer. Covers storing, kinking, tying, splicing, etc. Gives rope specifications. *Tubbs Cordage Co.*

(20) HOW TO MAKE YOUR OWN INERT GASES. Flow diagram in eight-page bulletin shows how inert gas generators work and how six principal modifications of the basic generated gas are achieved. Also gives chemistry of gases. Specification tables shown. *O. M. Kemp Manufacturing Co.*

(21) RYERSON TUBING SERVICE. Thirty-two pages of information on seamless and welded carbon steel tubing, stainless tubing, welded boiler tubes, etc. Reference data included on tubing tolerances, mechanical properties, tempers, decimal equivalents, and analyses. *Joseph T. Ryerson & Son, Inc.*

(22) FLEXIBLE CHECK VALVE. New bulletin describes operation and performance of this firm's expansible tube-type valves employed on gas, oil, and water at temperatures not exceeding 150° F. *Grove Regulator Co.*

(23) TWIN-WELD WELDING HOSE. Simple and quick methods of installing patented welding hose told in new pamphlet. Explains ease of handling, greater safety and faster operation achieved with hose. *Hewitt-Robins, Inc.*

(24) ROTH HEAVY-DUTY FLEXIBLE COUPLED PUMPS. Eighteen pages describe coupled pumps, special metal pumps, and a series of industrial pumps. Catalog data, specifications, selection tables, and prices are featured in bulletin. *Roy E. Roth Co.*

IT'S NEW ✓ CHECK IT

(25) ONAN ELECTRIC PLANTS. Twenty-page catalog covers complete line, including new models. Contains a model guide to assist in right selection of electric plants. General information section gives statistics on watts required by motors. *D. W. Onan & Sons, Inc.*

(26) PROCESS EQUIPMENT CATALOG on stainless and high-alloy steels used in the processing equipment field. Of special interest and value to those whose operations are subject to extraordinary corrosion, heat or abrasion. *Electric Steel Foundry Co.*

(27) BETHLEHEM FLOW TUBE. Six-page folder combines cutaway views and engineering drawings to describe principle on which flow tubes operate. Curves plotted on cross-sectional and logarithmic charts, illustrate results of calibration tests conducted by an independent authority. Engineers on the lookout for means of improving measurement or control of fluid flow should find the folder valuable. *Bethlehem Foundry & Machine Co.*

(28) BONNY WELDOLETS FOR BRANCH OUTLETS. Twenty-four-page illustrated catalog presents information on how fittings reduce piping costs from 50 to 75 per cent. Gives complete installation instructions, sizes, dimensions, weights, and other technical data and specifications. *Bonney Forge & Tool Works.*

(29) LUNKENHEIMER "RENEWO" VALVE THREESOME. Illustrated 12-page folder shows in cutaway fashion interchangeability of parts by which users of regular type "Renewo" valves can convert to either nickel-alloy or stainless-steel plug-type valves by simply changing seats and disks. Renewable features of new valve line, described, reduce original and maintenance expense by lowering stockroom investment and facilitating repairs. Helpful tables of dimensions are also included. *Lunkenheimer Co.*

(30) DRILL PIPE AND TOOL JOINTS. New 12-page bulletin describes and illustrates Spang-Chalfant's new double seal shrink thread drill pipe and tool joints. It features new design, having seals at both internal and external ends of pipe threads as well as shrink thread design. Recommendations for use and care of drill pipe and tool joints are included. *National Supply Co.*

(31) STANDARD SPECIALTIES CATALOG. To help designers, engineers, and buyers cut costs, 200 standard products for corrosive and high temperature service are listed in new catalog. It is the first complete compilation of products made of Monel, nickel or Inconel available from stock or standard designs. Specialties are described and illustrated under 47 general classifications. *International Nickel Co., Inc.*

(32) CATERPILLAR DIESELS IN THE OIL FIELDS. Oil-field drilling operations pictorially presented highlighting economical applications of diesel power in varied phases of oil field work. Such operations as drilling, slush-pit building, and equipment transportation are discussed. *Caterpillar Tractor Co.*

(33) SCHLUMBERGER SERVICES. New catalog presents illustrations and descriptive data on all of the 17 Schlumberger services available. *Schlumberger Well Surveying Corp.*

IT'S NEW ✓ CHECK IT

The Oil and Gas Equipment Digest presents a review of what is new in equipment and trade literature . . . makes it possible for readers to obtain full information on every subject by use of convenient "Check It—Mail It" service card. This periodic feature of The Oil and Gas Journal will include all that is new in equipment . . . at a time when new products are being introduced, and existing products improved.

Keep Informed. Save Time. Tear Out Card. Check It. Mail It.

THINK

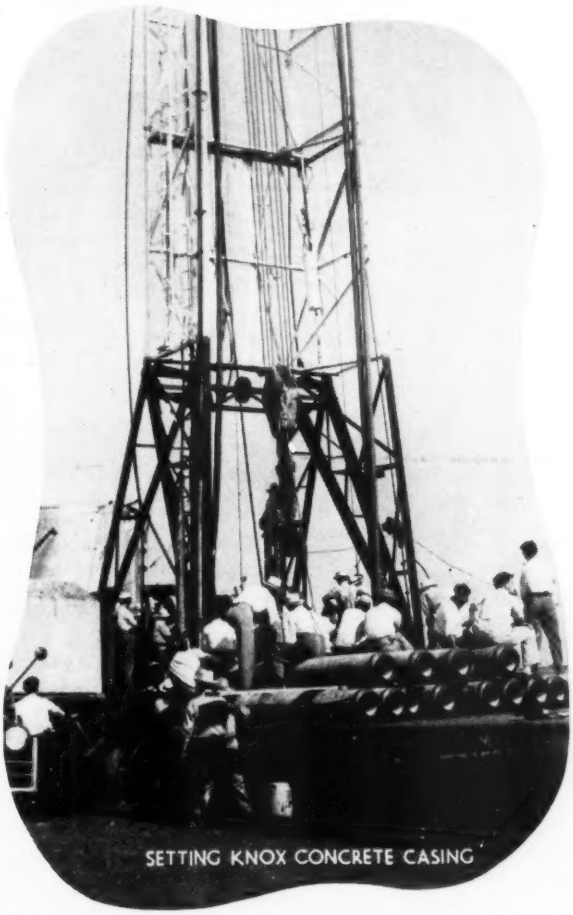
MR. OIL OPERATOR

DO YOU WANT TO
CONTINUE
WASTING STEEL
FOR
SURFACE CASING?

ONCE RUN AND CEMENTED, WHETHER AN OIL WELL, OR A DRY HOLE, IT IS OUT OF CIRCULATION
FOREVER

WHY NOT USE
KNOX CONCRETE
SURFACE CASING?

IT IS DOING THE JOB



SETTING KNOX CONCRETE CASING

STEEL
IS
NEEDED
FOR OUR
NATIONAL SECURITY

WE CANNOT
AFFORD
TO PLACE A TON
OF STEEL WHERE
A TON OF
CONCRETE
WILL DO THE
JOB

TWO MILLION HOMES ARE NEEDED
TWO MILLION TONS OF STEEL ARE NEEDED TO BUILD THESE HOMES

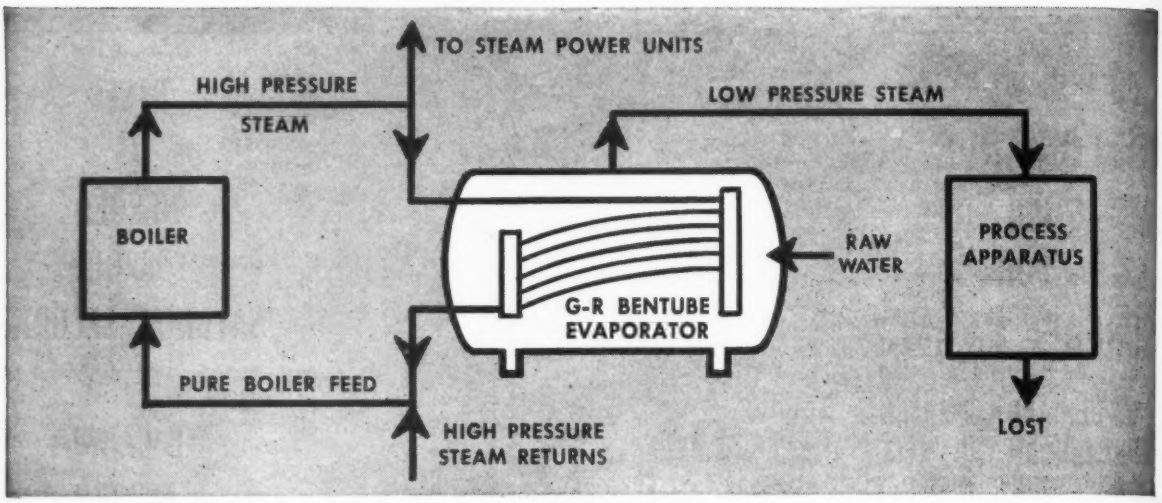
MANUFACTURED BY

Knox Industries Corp.

KNOX BLDG. ENID, OKLA.

DISTRIBUTED BY INDEPENDENT SUPPLY STORES

HOW you can obtain PROCESS STEAM efficiently



Bulletin 366 explains the various methods of associating evaporators with the plant heat balance and describes in detail the designs and special features of G-R Evaporators. Write for your copy.

A G-R Bentube Evaporator uses steam from high pressure sources to produce lower pressure steam for process work. The high pressure steam which operates the evaporator is all returned to the boiler, after use, in the form of condensate. Therefore, no raw, scale-forming make-up or contaminated drains from steam used in process is fed to the boiler, thus reducing boiler maintenance.

Raw untreated water can be fed to the evaporator producing the process steam. G-R Bentube elements of scale-shedding design make possible the use of raw water because they maintain rated heat transfer without requiring hand scaling.

The G-R Bentube Evaporator used in this service operates as a practically 100% thermally efficient reducing valve, and ideal plant heat balance can be arranged.

Many millions of pounds per hour of process steam are now being produced in highly successful G-R Bentube Reducing Valve Evaporator plants. Investigate this economical method of obtaining process steam for your plant.

THE GRISCOM-RUSSELL CO.
285 MADISON AVENUE, NEW YORK 17, N. Y.

GR-104

GRISCOM-RUSSELL
Pioneers in Heat Transfer Apparatus

REFINING

Sohio Locates New Lube Refinery at Lima, Ohio

CONSTRUCTION of a $13,000,000 solvent refining plant for lubricating oils at Lima, Ohio, has been authorized by Standard Oil Co. (Ohio). The new plant is in addition to the $16,000,000 modernization and expansion program already under way at Lima and is a part of Sohio's $100,000,000 capital-investment program for the 3-year period of 1948-1950.

Construction of the lubricating-oils plant is expected to begin within a year and will be completed in early 1951. Designing has already begun.

The new plant will have a capacity of 76,000 gal. of finished solvent refined lubricating oil per day. This will more than double Sohio's existing capacity for the production of lubricating oils at its Cleveland No. 2 refinery and Toledo refinery. The Cleveland No. 2 plant with a capacity of 46,000 gal. of lubricating oil per day will continue to produce many of Sohio's compounded industrial and motor lubricating oils, greases, waxes and specialty products. A portion of Toledo's plant facilities for lubricating oils may also be continued.

The five units of the new Lima plant will provide vacuum distillation, solvent deasphalting, solvent extraction, solvent dewaxing, and clay treating.

Decision to locate a lubricating oils plant at Lima was based, among others, on the fact that the crude refining, coking and catalytic cracking units now under construction, will nearly double the Lima plant crude capacity from 16,000 to 28,000 bbl. daily. This increased crude refinery capacity will provide the raw lubricating charge stocks, and enough excess gas for the full fuel requirements for the lubricating oil plant.

Contract for the solvent deasphalting unit has been let to M. W. Kellogg Co. and the contract for the four other units of the solvent refining plant, to Lummus Co.

Operations Will Start Soon At New Petrochemical Plant

HOUSTON.—Stanton Chemicals, Inc., is expected to place its new petrochemical plant at Corpus Christi in operation in the near future.

The plant has been under construction since last spring and will have a capacity of about 50 tons of finished products daily. Production will include benzol, toluol, xylol, napthalene, anthracene, anthraquinone, and phthalic anhydride.

Robert E. Stanton, president of the company, is a former Denver consulting engineer who during the war assisted in the synthetic-rubber, high-octane, and organic-chemicals programs. Other officers are: Dr. David W. Lebby, vice president in charge of sales; Jack Crown, New Kensington, Pa., vice president; Joseph Brody, Kittaning, Pa., treasurer; Nat Helman, New York, secretary; and Sidney Silverman, New Kensington, assistant secretary. Tilford Bean will be plant manager, and Dr. David E. Levin, of Allied Analytical and Research Laboratories, Dallas, will direct laboratory activities.

Royal Expansion Includes Storage and Modernization

An expansion program announced by Royal Petroleum Corp. will include storage facilities both in Sewaren, N. J., and Corpus Christi, Tex., and modernization of its refinery at Corpus Christi.

Storage for more than 500,000 bbl. of additional fuel oil at Sewaren is almost complete. The additional storage is made up of four 132,000-bbl. capacity tanks.

Tanks for storage of an additional 600,000 bbl. of fuel oil at the Royal storage terminal at Corpus Christi and a $3,000,000 modernization and expansion program at the Royal refinery are under way.

New Refinery Planned for Sewaren Area, New Jersey

Shell Oil Co., Inc., is considering the Sewaren-Woodbridge area of New Jersey as the site for a proposed new manufacturing plant, its first to be located on the East Coast.

Officials of the company revealed at a meeting of New Jersey business men, that the company had already acquired 650 acres located on the Kill van Kull and hold options on an additional, adjoining 400-acre tract. It was pointed out, however, that final decision on location of the refinery has not yet been reached, and other East Coast sites are still under consideration.

The proposed Shell refinery will have a crude capacity ranging from

PETRECO
Electric
DESALTING

A desalting process is no more efficient than the organization offering it

A Desalter is an intricate piece of electro-chemical machinery. Machines require service, replacement parts, *operating know how.*

PETRECO
Electric DESALTING

is backed by a trained and experienced organization, set up to insure Petreco customers of maximum desalting efficiency.. *at no additional cost.* With Petreco Desalting every customer is assured that his desalter will provide better desalting because of

★ PETRECO LEADERSHIP
★ PETRECO SERVICE
★ PETRECO REPLACEMENT STOCKS
★ PETRECO LAB FACILITIES
★ PETRECO EXPERIENCE
★ PETRECO KNOW HOW

The efficient removal of salts from crude oil is not a simple task—*except when handled by experts.* Petreco provides the *experts,* and the Petreco experts provide the *know how.* To simplify your salt removal problem, write or call the nearest Petreco headquarters — a Petreco engineer, with facts and figures on how Petreco can increase your profits, will call at your convenience.

Get ALL the facts . . . it pays

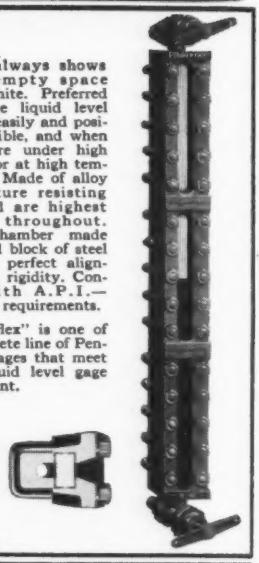
PETROLEUM RECTIFYING COMPANY
5121 S. Wayside Dr. • Houston 1, Tex.
648 Edison Bldg. • Toledo 4, Ohio
530 W. 6th St. • Los Angeles 14, Cal.

PETRECO
Electric DESALTING · DEHYDRATING

PENBERTHY
"REFLEX"
DROP FORGED STEEL
LIQUID LEVEL GAGES

Liquid always shows black—empty space shows white. Preferred where the liquid level must be easily and positively visible, and when liquids are under high pressure or at high temperature. Made of alloy temperature resisting steel and are highest quality throughout. Liquid chamber made from solid block of steel to assure perfect alignment and rigidity. Conform with A.P.I.—A.S.M.E. requirements.

The "Reflex" is one of the complete line of Penberthy Gages that meet every liquid level gage requirement.



PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

INDUSTRIAL
OIL AND GAS
BURNING
EQUIPMENT
AIROIL
NATIONAL
BURNER CO., INC.
1236 E. Sedgley Ave., Philadelphia 34, Pa

"GUNITE" CONCRETE
(SINCE 1915)
LININGS FOR
BUBBLE TOWERS • SETTLERS • STILLS • SEPARATORS • TANKS • AND VESSELS OF ALL TYPES • ENCASING AND FIREPROOFING STRUCTURAL STEEL AND PIPE • LINING WATER RESERVOIRS, DITCHES, DRAINS, AND CANALS • REPAIRING DISINTEGRATED CONCRETE AND OTHER MASONRY.
GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.
District Branch Offices
R. N. Turner, Dist. Mgr., 228 No. La Salle St., Chicago 1, Ill. B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City (St. Louis), Mo. Philip D. Barnard, Dist. Mgr., 2036 Addison, Houston 5, Tex.
Branch Offices: Denver, Dallas, New Orleans

60,000 to 75,000 bbl. daily which would rank it among the five largest plants on the Eastern Seaboard. It is expected to provide employment for 1,500 operational personnel.

Foundation Work Started On Ammonium Sulfate Plant

HOUSTON. — Foundation work is now under way for the construction of Phillips Chemical Co.'s new ammonium sulfate plant on the Houston Ship Channel.

Chemical Construction Corp., New York, which has the general contract, has established an office in nearby Pasadena. Phillips is converting to its own use much of the facilities of the Houston - Todd Shipbuilding Co. acquired by Phillips when it recently bought the plant site from the War Assets Administration.

Socony-Vacuum Sets Up Research Fellowship

Socony-Vacuum Oil Co., Inc., has established a new graduate research fellowship valued at $2,000 at Lehigh University, Bethlehem, Pa.

The Lehigh fellowship, one of 13 sponsored by Socony-Vacuum, is assigned to the department of chemistry and chemical engineering for research in the general field of instrumental analysis, under the direction of Dr. Earl J. Serfass, professor of chemistry.

This is the only Socony - Vacuum fellowship given for the support of research in analytical chemistry.

The Texas Co. Develops New Aircraft Grease

A new type of aircraft grease, which meets all lubrication requirements for flying operations between temperature extremes of 40° F. and 250° F., has been announced by The Texas Co.

The company also announced development of a new test for evaluating aircraft engine oil. Through a unique temperature-control system a simultaneous check of oil performance under different temperatures is possible.

Each cylinder of the four-cylinder air-cooled Continental engine used in the test is operated at a different temperature and four thermocouples are attached to each.

Refinery Dividends Climb

WASHINGTON. — Publicly announced dividends of oil-refining corporations amounted to $76,400,000 in September, compared with $58,800,000 in the same month last year, it is shown by a Department of Commerce survey. Total dividends paid by refining corporations in the third quarter were $121,400,000 compared with $93,100,000 for the same period last year, an increase considerably greater than that reported by any other industry.

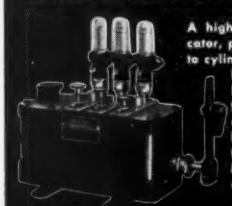
Alberta Gets New Lab

Chemical & Geological Laboratories, Ltd., Canadian subsidiary of Chemical & Geological Laboratories, Casper, Wyo., has completed installation of equipment at plant in Edmonton, Alta., to serve the oil industry in the central part of the province of Alberta. The laboratory is equipped to handle core, water, and gas analyses.

McCORD
"CLEARSITE"
SIGHT
FEED

McCord "Clearsite" plastic sight feeds provide a new degree of visibility and clearness, supplying positive proof of oil delivery. Due to its design this sight feed may be used as an independent sight at point of lubrication. As an accessory it can be added to any lubrication system. Specify "Clearsite."

McCORD "SF" LIQUID SIGHT FEED LUBRICATORS



A highly developed lubricator, particularly adapted to cylinder and bearing lubrication. Features: Precision built, most flexible and positive oil delivery system known. Supplied in 1 to 24 feeds. Specify McCord "SF" Lubricator.

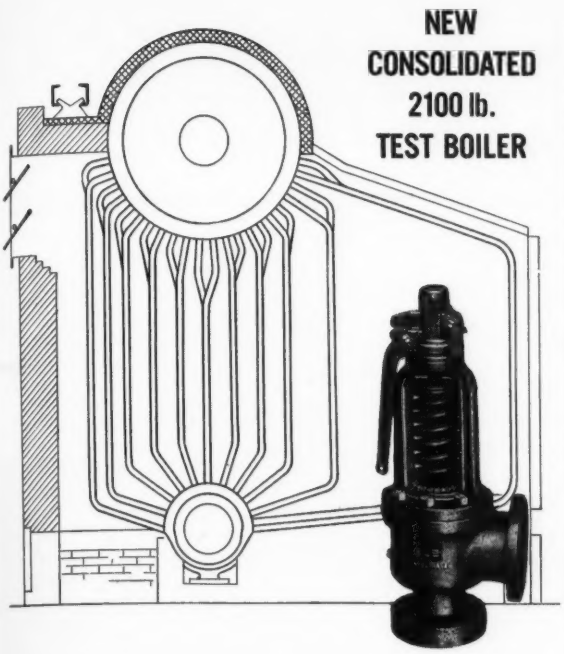
For Sale by National Supply Co.

McCORD CORPORATION
DETROIT 11, MICHIGAN
LUBRICATOR DIVISION

moving?

If you are moving be sure to notify THE OIL AND GAS JOURNAL at least three weeks in advance. When writing, give both old as well as new address. . . . Just clip mailing label from The Journal, indicate new address and mail to

CIRCULATION DEPARTMENT
THE OIL AND GAS JOURNAL
Box 1260 Tulsa 1, Okla.



Keeping ahead

CONSOLIDATED's new 2100 psi test boiler, now being installed, simulates actual field operating conditions, and permits factory testing of all CONSOLIDATED high pressure safety valves—right at the plant—before shipment.

In 1926, the first large 1250 psi boiler ever built in the United States, was installed at the Bridgeport, Connecticut plant of Manning, Maxwell & Moore, for the sole purpose of developing and testing high pressure safety valves.

Again today—CONSOLIDATED keeps ahead with the most modern and exclusive facilities for adjusting set point and blow-down, and for testing performance characteristics of boiler safety valves up to 2100 psi.

A CONSOLIDATED specification takes the guess-work out of Safety Valve selection, and assures the maximum in safety and dependable operation.

MAXWELL MANNING M&M & MOORE INC. TRADE MARK

CONSOLIDATED SAFETY VALVES

1879 CONSOLIDATED U.S.A.

A Product of

MANNING, MAXWELL & MOORE, INC.

BRIDGEPORT 2, CONNECTICUT

Makers of Consolidated Safety and Relief Valves, 'American' Industrial Instruments, Hancock Valves, Ashcroft Gauges. Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists, and other lifting specialties.

Thicknesses from 1/64 to 1/4 inches. Sheets 40 x 40 inches and larger.

Feeding mix for GARLOCK 7021 into sheeters at Garlock factory.

For Extreme Pressures

AND HIGH TEMPERATURES

GARLOCK 7021 Compressed Asbestos Sheet Packing was specially developed by Garlock for severe oil service. It is strong and tough, yet resilient. Gaskets cut from GARLOCK 7021 give superior service on pipe lines and other equipment handling gasoline, oil, gas or steam at extreme pressures and high temperatures.

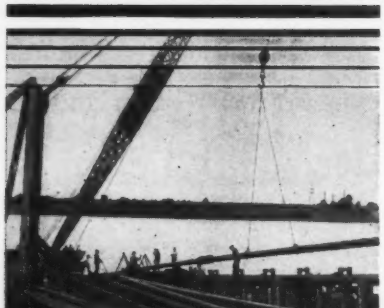
THE GARLOCK PACKING COMPANY
PALMYRA, N. Y.
Tulsa, Okla. Houston, Tex.
Los Angeles, Calif.

GARLOCK 7021

COMPRESSED ASBESTOS SHEET PACKING

CRC
PIPE LINE CONSTRUCTION EQUIPMENT
CRUTCHER-ROLFS-CUMMINGS, INC.
Pipe Line Equipment and Materials
Houston - Tulsa

THE value of a well-integrated organization with years of experience and specialization in pipe line construction is reflected in the type of work being done by Latex.



Latex
CONSTRUCTION CO.
General Contractors
Oil • Gas • Gasoline • Water Pipelines
HOUSTON, TEXAS ATLANTA, GA.
L. H. Farrar — G. A. Peterkin — J. W. Sharman

PIPE LINES

Texas-Empire to Lay Patoka-E. Chicago Line

THE Texas-Empire Pipe Line Co. has announced plans for construction of crude-oil lines consisting of 183 miles of 18-in. pipe from Patoka to Wilmington, Ill., and 31 miles of 16-in. pipe from Wilmington to East Chicago, Ind. Cost has been estimated at $10,000,000.

Completion of the projects will link Jal, N. M., with East Chicago through lines owned by Texas-Empire, Texas, Empire and Shell pipe-line companies, and Sinclair Refining Co. Contract has been let by The Texas Pipe Line Co. to Tulsa Engineering & Construction Co., Inc., for construction work preparing the site of the Cushing tank farm, which will be the eastern terminus of the Jal-Cushing line.

The new projects will include a modern type diesel pump station and nine 100,000-bbl. capacity tanks at Patoka and a new modern type station and six 120,000-bbl. tanks at Wilmington, R. B. McLaughlin, president of Texas-Empire, said.

Normal capacity of the 18-in. line with initial pump stations will be 69,000 bbl. per day. Subsequent installation of a booster station will increase the capacity to 104,000 bbl. per day.

The new system will connect with a 22-in. line of Texas Pipe Line Co. scheduled for completion next May between Wood River, Ill., and Patoka.

A 22-in. line from Cushing, Okla., to Wood River, owned and operated on an undivided interest basis by Shell and Texas pipe-line companies, is to be completed by next winter.

Construction of the Patoka-Wilmington line is to begin early next year with completion scheduled for September 1. Construction of the Wilmington-East Chicago link will begin in the spring of 1950. Contracts have been awarded for the tank grade work at Wilmington and will be awarded in the near future for similar work at Patoka.

Phillips Buys Longview Gathering System Assets

Announcement has been made that Phillips Pipe Line Co., wholly-owned subsidiary of Phillips Petroleum Co., has purchased all assets of the Longview Gathering System, Inc., which includes 48 miles of trunk lines and gathering lines in the East Texas field.

These lines are located primarily in the north portion of the East Texas field and will be operated in connection with the Cordova pipe line system, which is in the south end. According to the company's announcement, this system will provide pipeline facilities for connecting to leases whose oil production has recently been offered to Phillips, and will also make possible the purchase of additional oil throughout the length of the East Texas field.

Commission Authorizes Mich.-Wis. Bond Sale

WASHINGTON.—The Securities and Exchange Commission last week authorized the sale to two insurance companies of a Michigan-Wisconsin Pipe Line Co. issue of $66,000,000 first-mortgage bonds and received from Trans-Continental Gas Pipe Line Corp. a registration statement covering part of a financing program which will run in the neighborhood of $200,000,000.

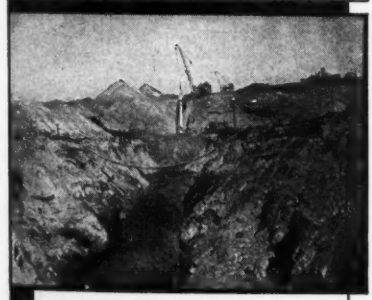
The Michigan-Wisconsin authorization was granted over a protest that the bonds should be offered for sale at competitive bidding filed by Otis & Co., Cleveland investment bankers *(see The Oil and Gas Journal, October 28, page 124)* involved in the Kaiser-Frazer stock issue fiasco a few months ago, and may be the subject of court proceedings.

The proceeds of the sale, made to the Metropolitan and Mutual Life Insurance companies, are to be used in the construction of the initial portion of the natural-gas pipe line the company will build from the Hugoton gas field to Wisconsin and the Austin storage field in Michigan. Another $22,000,000 already has been provided through the sale of Michigan-Wisconsin common stock to its parent company, American Light & Traction Co.

The Trans-Continental registration covered the public offerings of 265,000 shares, each, of preferred and common stock, to be offered in units of one share of each at a price not yet determined. The company also is offering 2,250,000 shares of common to holders of outstanding common at a subscription price of $10 per share, at the rate of three shares for each

FULTON
LAYS THE LINE
• FINANCED
• EQUIPPED
• ORGANIZED
TO BUILD
OIL PIPELINES

GAS PIPELINES

GASOLINE PIPELINES

WATER PIPELINES
R. H. Fulton
& COMPANY
CONTRACTORS
PHONE 5231 BOX 1542
LUBBOCK, TEXAS

share of the outstanding stock held on a date to be fixed later. The financing program further includes the issuance next June of $143,000,000 of first mortgage bonds, the sale of which already has been arranged with unnamed institutional investors.

Trans-Continental proposes to construct an 1,840-mile pipe-line system from Texas and Louisiana to New York City, with an estimated maximum delivery capacity of 340,000 M.c.f. of natural gas daily, at a cost of approximately $190,000,000. Most of the proceeds of the security offerings will be used for construction, working capital and other corporate requirements, but an unspecified amount will be set aside for the payment of dividends on the preferred stock prior to December 31, 1950. The expected completion date of the system is early in 1951.

Pipe Line Seeks to Shift Incorporation to Delaware

Trans-Continental Gas Pipe Line Corp., incorporated in Delaware, is seeking authority from the Federal Power Commission to acquire, construct, and operate proposed facilities of Trans-Continental Gas Pipe Line Co., Inc., a Texas corporation, and to succeed all other rights and obligations of the Trans-Continental company under FPC jurisdiction.

The Trans-Continental Gas Pipe Line Co., Inc., was authorized by FPC on May 29, 1948, to construct and operate a natural-gas transmission system extending from Texas to New York City.

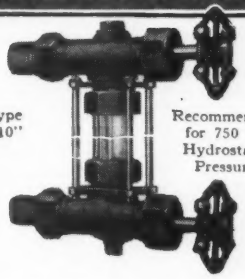
A hearing has been set to open November 8 to receive additional evidence concerning extension of the company's gas purchase contracts, its proposed plan of financing, and such other matters as bear on its recent request for an amendment of the original authorization.

The Delaware corporation said that if the commission approves both its application and the amendment, the facilities would be financed through sale of $143,000,000 principal amount of first mortgage pipe-line bonds, 265,000 shares of preferred stock, and 265,000 shares of common stock of 50 per cent value per share, as units consisting of one share of common stock, and sale of 2,250,000 shares of common stock to be offered to its common stockholders.

The financing program can be carried out under Delaware laws, the application stated, however, it "is advised that certain obstacles exist to the carrying out of such a program under the laws of Texas. . . ."

Should the application be granted, the Trans-Continental corporation said there would be no change in management and no increase in operating expenses or in cost of service.

At the same time, based on another

PENBERTHY
DROP FORGED STEEL
LIQUID LEVEL GAGES

Type "10"
Recommended for 750 lb. Hydrostatic Pressure
Steel construction throughout with stainless steel interior trim. Automatic shut-off is positive and instantaneous; stainless steel balls shut off the flow of liquid when glass breaks. Heavy duty stuffing boxes, union connections, offset construction facilitate cleaning and simplify glass replacement. Conform with A.P.I.—A.S.M.E. requirements.
This is one of the complete line of Penberthy gages that meet every liquid level gage requirement.
PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

ONE OF THE
LARGEST STOCKS OF
INTERNATIONAL
INDUSTRIAL
MACHINERY PARTS
WEST OF THE MISSISSIPPI
Boyd will save you "down-time" by having needed parts quickly available for your International Equipment.
CLARENCE L.
BOYD
CO.
TULSA, OKLAHOMA

"Everything for the Pipeliner"

PIPE COATING and WRAPPING MACHINES
Stationary and Line Traveling

PIPE CLEANING and PRIMING MACHINES
Stationary and Line Traveling

American Steel Works
HEATING KETTLES

PIPE LINE SUPPLIES AND EQUIPMENT

PERRAULT Brothers INC.
1130 NORTH BOSTON
TULSA 6, OKLAHOMA
Phone 5-1104

CATHODIC PROTECTION SYSTEMS

Designed and installed by our staff of EXPERIENCED CORROSION ENGINEERS for:
Pipelines • Tank Bottoms • Gathering Systems
Water Tanks • Water Treating Systems • Filling Station Tanks • Gas and Water Distribution Systems • Sheet Piling and Piers • Offshore Drilling Rigs • Condenser Heads and Tube Sheets • Deep Water Wells
Contracts made on a turn key basis at a lump sum cost

CATHODIC PROTECTION SERVICE
Distributors of Dow Magnesium Anode Products
HOUSTON — Nells Esperson Bldg., Tel. F-3843
TULSA — P. O. Box 51

S. E. HUEY & CO.
ENGINEERS & SURVEYORS
OUACHITA BANK BLDG.
MONROE, LA.

SURVEYING & MAPPING

PIPE LINE SURVEYS

petition filed by Trans-Continental, FPC has ordered the omission of the intermediate decision procedure. This petition is for an amendment of the FPC order authorizing substitution of the Texas - New York transmission system, authorizing substitution of 30-in. for 1,210 miles of 26-in. pipe previously authorized.

The commission stated that "due and timely execution of its functions . . . requires" that it render a final decision in this case to allow Trans-Continental to complete its financing program in time to comply with the terms of its steel purchase contract with Kaiser Co., Inc.

The contract with Kaiser company calls for the purchase of 470,000 tons of steel plate at $113 per ton, the deliveries of which are to commence in January 1949. Under the contract terms, Trans-Continental is committed to pay $3,000,000 to the Kaiser company on or before November 10, 1948, or the contract may be terminated.

Court Will Not Review Panhandle's Protest

The Supreme Court has refused to review a protest of Panhandle Eastern Pipe Line Co. against government authorization of a competing natural-gas pipe line into the Detroit, Mich., area.

Authorization was recently granted by the Federal Power Commission to Michigan-Wisconsin Pipe Line Co. to construct and operate a line from the Hugoton field in Texas to the Austin storage field in Michigan. The line would supply towns in Wisconsin, Iowa, Missouri, and Michigan.

Principal market for the new line would be the Detroit-Ann Arbor area, whose entire natural-gas supply now is provided by Panhandle Eastern to Michigan Consolidated Gas Co., the local distributor.

The Supreme Court also has refused a request of Montana-Dakota Utilities Co. to review a case involving the extent to which the FPC can go in regulating common carriers of natural gas. The company contended that FPC exceeded its authority by setting up a new rate schedule for the company and in ordering it to supply services equal to all those using the common carrier facilities.

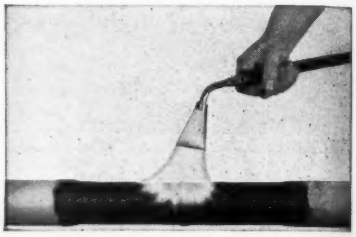
Texas Builds Employe Homes

HOUSTON.—The Texas Pipe Line Co. has awarded contracts for immediate construction of 22 residences for employes in the Wichita Falls and Midland, Tex., areas. ABC Construction Co., Wichita Falls, will build 11 cottages and garages at the Wichita Falls tank farm on the Jal, N.M.-Cushing, Okla., pipe line. A contract was given Mid-West Lumber Co., Midland, Tex., to build 11 cottages and garages at the Midland tank farm on the same line.

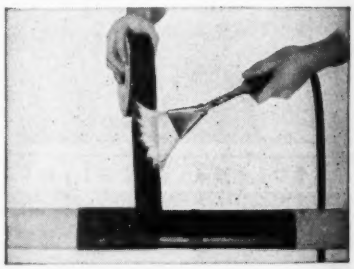
It's EASY to Protect PIPE JOINTS with TAPECOAT

Just follow three simple steps

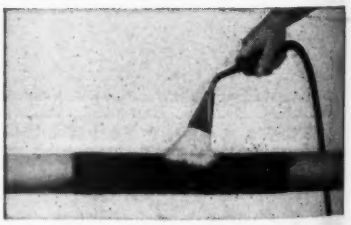
A practical, protective coating in handy tape form, TAPECOAT is easy to apply on pipe joints to give protection equivalent to the mill or machine coating on the pipe. It's clean—no dirt, no mess. Saves time and labor. Economical. Here's all you do:



STEP 1—Remove kraft paper on mill or machine coating back far enough to start one spiral wrapping of TAPECOAT over mill coating. Clean and dry bare pipe with torch as shown.



STEP 2—Start wrapping TAPECOAT where kraft paper has been removed. Flash flame of torch *lightly* on TAPECOAT to bleed its coating. Secure double thickness of TAPECOAT by overlapping slightly more than half the width of the tape.



STEP 3—Finish wrapping TAPECOAT. When wrapping is completed, flash the torch flame over entire TAPECOATED section to bleed coating to a shiny surface.

Write for complete details

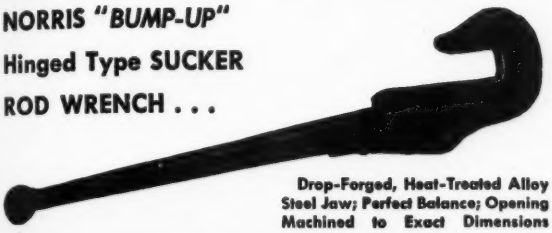
The TAPECOAT Company
1523 Lyons St., Evanston, Illinois

BUILT TOUGH
To Take Plenty of Punishment!

NORRIS "ROYAL" Solid Type HAMMER HEAD SUCKER ROD WRENCH . . .

Drop-Forged Alloy Steel, Machined and Hardened Jaw, Perfect Balance

NORRIS "BUMP-UP" Hinged Type SUCKER ROD WRENCH . . .



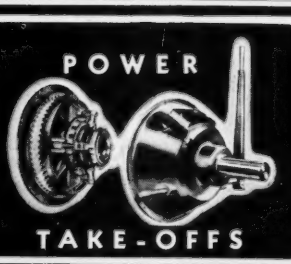
Drop-Forged, Heat-Treated Alloy Steel Jaw; Perfect Balance; Opening Machined to Exact Dimensions

AT YOUR FAVORITE SUPPLY STORE

Norris Brothers, INC.
ROBINSON · ILLINOIS

JUST THE RIGHT

Learning Your Clutch Needs · Analysing the Problem · Designing the Clutch · Planning Production · Tooling Up · Manufacturing · Checking and Testing · Supervising Installation · Servicing



Automotive and Aircraft · Trucks and Busses · Tractors and Road Machines · Farm Machines and Implements · Oil Field Rigs and Pumps · Industrial · Mowers and Light Machines · Engines and Marine Units · Machine Tools Production Units

ROCKFORD CLUTCHES

Your power control and transmission requirements, whatever they may be, will benefit from clutches that are exactly suited to their needs. Thousands of manufacturers — in hundreds of industries — have found that the right ROCKFORD CLUTCHES increase the efficiency of their machines. Our engineers are not restricted to any one type or size of clutch — but are free to specify one that is best suited to the particular operating essentials of your product. Write for our latest bulletin.

ROCKFORD CLUTCH DIVISION
BORG-WARNER
1305 Eighteenth Street, Rockford, Illinois

TRENCHING IS NO PROBLEM . . .

UNIT 514 Trenchoe digging trench for oil field pipe line.

WHEN YOU USE A UNIT MOBILE OR CRAWLER TRENCHOE

Digs trenches for pipe . . . sewer and water connections . . . Footings . . . Basements . . . Culverts . . . and a thousand other excavating jobs. **Trims corners, neatly and squarely . . . cuts a level floor . . . delivers straight vertical side walls without additional labor of hand trimming.** Powerful . . . compact . . . perfectly balanced . . . every UNIT is designed to meet the most rigid demands. **Trouble-free, economical performance built into every machine . . . Service and maintenance needs are negligible.** Write for literature.

UNIT 357 Mobile Trenchoe. Self-propelled . . . rides on rubber . . . goes anywhere . . . digs deep. Quickly convertible.

½ and ¾ Yard EXCAVATORS — CRANES up to 15 TONS
Convertible to ALL Attachments

UNIT CRANE AND SHOVEL CORP.
6327 W. BURNHAM ST., MILWAUKEE 14, WIS., U. S. A.

SHOVELS · DRAGLINES · CLAMSHELLS
CRANES · TRENCHOES · MAGNETS

NATURAL GAS

FPC Proposes Rules for Natural-Gas Carriers

ADOPTION of three general rules governing the filing of applications for certificates of public convenience and necessity under the Natural Gas Act as amended, has been proposed by the Federal Power Commission. Comments are requested on the proposed rules by November 30, 1948.

The first rule is designed to clarify the interpretation of section 7(c) of the act which provides, among other things, that a certificate of public convenience and necessity must be obtained before any person may construct, acquire, or operate facilities for the purpose of engaging in the transportation or sale of natural gas, subject to FPC jurisdiction. Under the first proposed rule, "facilities" would be defined to exclude auxiliary and replacement facilities which do not change the daily delivery capacity of an existing pipe-line system, and facilities for establishment of new delivery points required for the delivery of gas to existing customers for resale in any local community presently served from the same pipe-line system.

Under the second rule, issuance of temporary certificates would be limited to cases where applications for permanent certificates are pending and the temporary authorization involves only minor extensions and such interconnections as may be necessary to assure maintenance of adequate service or to serve particular customers.

Rule three would exempt from the certificate provisions of the act, temporary construction and operation of facilities for not more than 60 days. However, all facilities constructed for use in temporary operations would have to be removed unless appropriate application were subsequently made for a certificate. Companies engaged in temporary operations would be required to file notice with FPC of such operations within 10 days after commencement with a statement explaining the purpose of the operations. In addition, a notice of the fact and date of discontinuance must be filed within 10 days following the end of such operations and notice of removal of any facilities constructed for temporary use must be filed within 5 days following their removal.

Copies of the proposed new rules may be obtained from the Division of Publications, Federal Power Commission, Washington 25, D. C.

Panhandle and Customers Agree on Winter Rules

After acceptance by Panhandle Eastern Pipe Line Co. and its Midwest customers, the Federal Power Commission has ordered that the emergency service rules in effect last winter governing deliveries of natural gas by Panhandle to its customers in the Midwest area should be put in effect again for the coming winter. The rules will become effective on November 1 and remain in effect until April 30, 1949, unless changed by the commission.

Panhandle will complete facilities to provide an additional 40,000,000 cu. ft. of gas daily by next February.

Curtailment is to be made in four steps depending on the severity of the shortage. The first step fixes the maximum volume which Panhandle may deliver to its direct interruptible customers and which any purchasing utility may take from Panhandle to supply interruptible customers at approximately 50 per cent of normal daily winter interruptible requirements.

The second step reduces these deliveries to approximately 10 per cent of normal. Step three retains the 10 per cent maximum for interruptible deliveries and reduces deliveries for firm industrial loads of utility customers to specific volumes representing approximately 50 per cent of normal peak-day requirements, and deliveries to customers who receive a portion of their gas requirements from Panhandle to specific amounts reflecting one-half of their full curtailment provided in step four. Under full curtailment, fourth step, aggregate deliveries to distributors are not to exceed stated volumes. Such volumes provide for approximately 10 per cent of firm industrial requirements over and above provisions of general and space heating service.

Formation of Panhandle Subsidiary Investigated

An investigation of the formation and proposed operation of the Hugoton Production Co. and the transfer of natural-gas reserves by Panhandle Eastern Pipe Line Co. to the Hugoton company has been ordered by the Federal Power Commission.

FPC stated that Panhandle Eastern caused the formation of the Hugoton company and transferred approximately 97,000 acres in Grant and Stevens counties, Kansas, to Hugoton in exchange for the company's stock and that Panhandle plans to distribute the stock to its own stockholders. FPC also said Hugoton has entered into, or is negotiating contracts for sale of this gas to parties other than Panhandle and that Panhandle, in support of its numerous applications to the Commission for certificates of public convenience and necessity, "has represented . . . the continuing availability . . . of certain natural-gas reserves, and the issuance of such certificates has been justified, in part, by such representations."

Cost-of-Living Adjustment

HOUSTON.—Tennessee Gas Transmission Co.'s 2,150 employes recently received an upward cost-of-living adjustment based on the August 15 rise in the U. S. Department of Labor's consumer's price index. Salaried employes whose previous cost-of-living increases total $35 a month received an additional $10; hourly operating employes previously given 18 cents an hour received an additional 4 cents.

Natural Gasoline

Work on Humble Natural Gasoline Plant to Start

HOUSTON.—Construction is scheduled to start early this month on Humble Oil & Refining Co.'s 100,000,000-cu. ft. daily capacity natural-gasoline plant at Opelousas, St. Landry Parish, Louisiana.

Hudson Engineering Corp., Houston, which has the contract, recently made a preliminary survey of the area and arranged housing for workmen. Humble which has a 64-acre site for the plant, has bought 12 additional acres for an employes' camp and office building.

Foundation for Stanolind Cycling Plant Nearly Laid

HOUSTON.—Foundation work is reported virtually completed for the 166,000,000-cu. ft. daily capacity cycling plant which Stanolind Oil & Gas Co. is building near Pettus in Bee County, Southwest Texas.

Preliminary work on the plant got under way last spring. It will serve the North Pettus and Burnell fields in Bee, Karnes, and Goliad counties. Liquid production is expected to be about 287,000 gal. daily.

A.P.I. MEETING

offers you the opportunity to check up on the

OLIVER *Continuous* PRECOAT FILTER

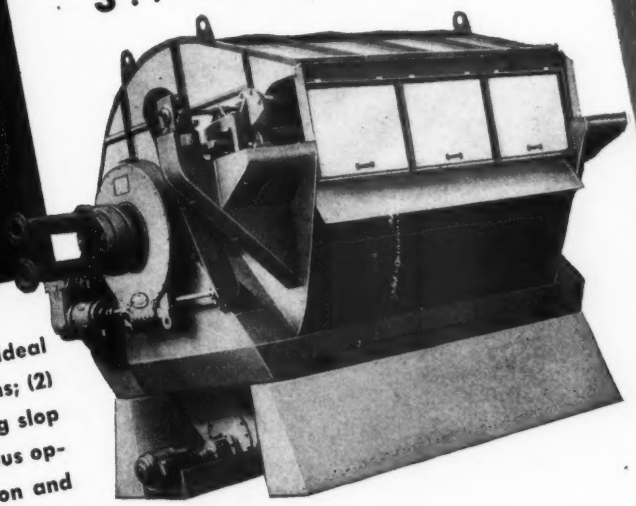
Refinery Wastes No Longer a Problem!

How are you handling your refinery "wastes"?

1 . . . Tank Bottoms?

2 . . . Separator Sludges?

3 . . . Slop Oil Emulsions?



The Oliver CONTINUOUS Precoat Filter is ideal for (1) Recovering values from tank bottoms; (2) dewatering separator sludges; (3) breaking slop oil emulsions. This filter provides continuous operation. Precoat formation, cake formation and cake discharge are entirely automatic.

No doubt you are interested in economical "waste" handling. Our representative attending the API Meeting in Chicago will be glad to discuss your problem. Call our Chicago Office — State 2-0560—and leave word where and when he is to meet you.

OLIVER UNITED FILTERS UF INC.

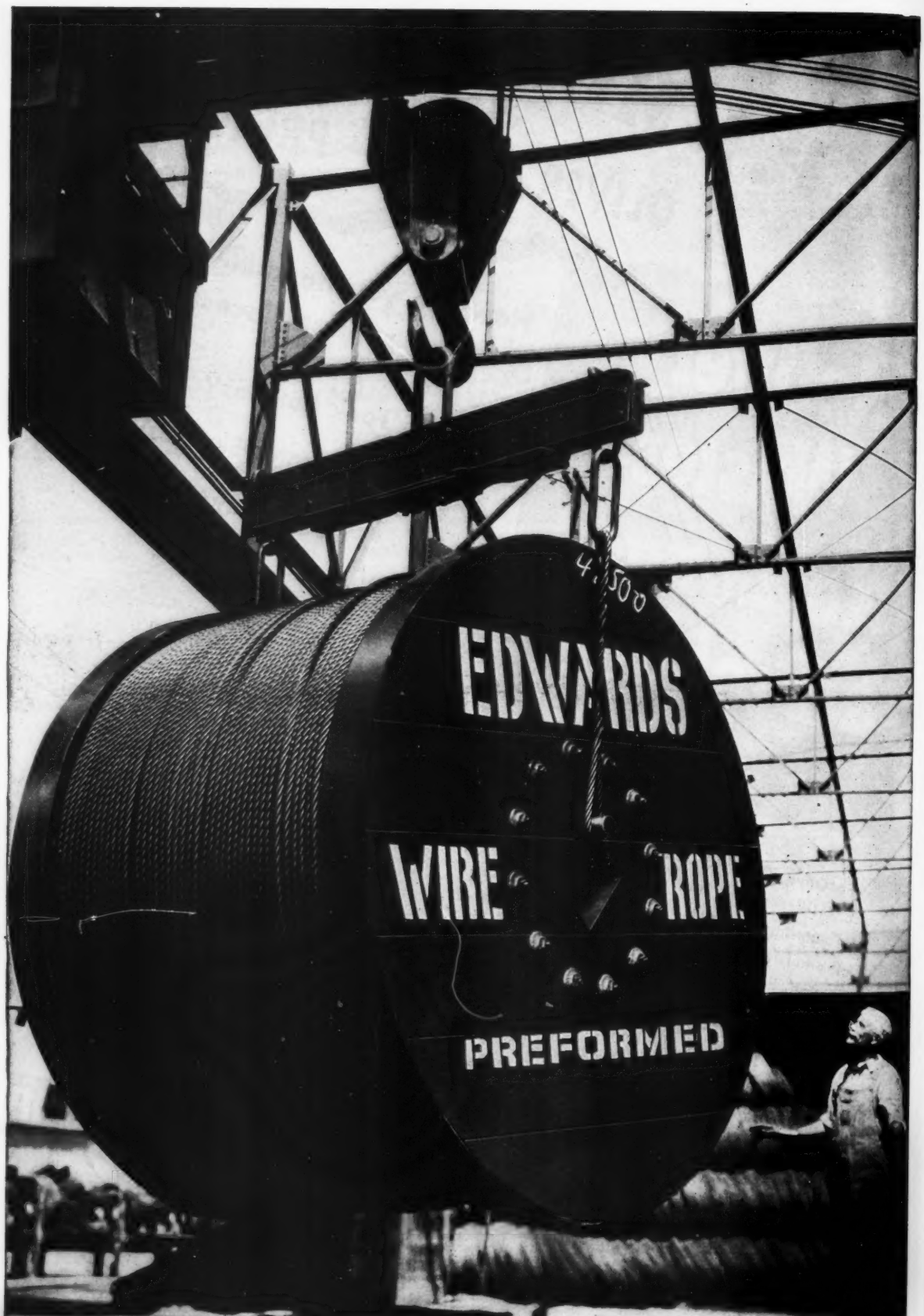
New York 18, N. Y.
33 West 42nd Street

Chicago 1, Illinois
221 N. LaSalle Street

San Francisco 11
California

Western Sales Division
Oakland 1, California
2900 Glascock Street

Factories: Oakland, Calif. • Hazleton, Pa. • Orillia, Canada • Melbourne, Australia



E. H. EDWARDS COMPANY — SEATTLE • PORTLAND • SAN FRANCISCO • LOS ANGELES • HOUSTON

Among the

Drilling Contractors

CAA Rules Concern Derrick Structures

Civil Aeronautics Administration officials issued a release this week reminding drilling contractors that oil derricks are also classified as structures that must not be erected within 15,000 ft. of an airport, without prior notice. This includes derricks under 100 ft. in height, it said.

Notice is also required for any structure to be greater than 150 ft. in height which is on or within 20 miles of a civil airway. Forms to be used in filing advance notice with the CAA may be obtained from the regional administrator, Box 1689, Fort Worth.

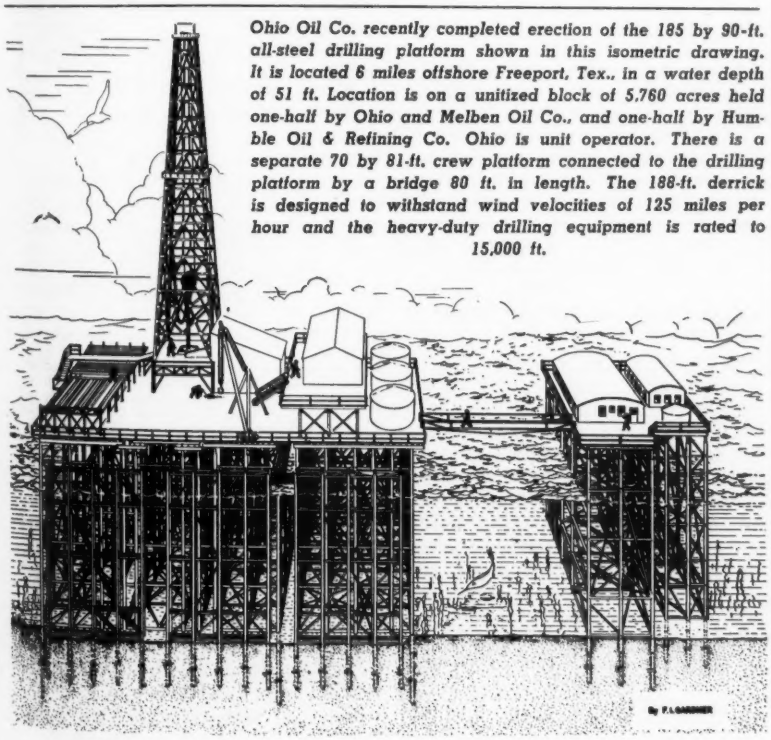
Brunson Drilling Co. has contract for The Texas Co. 1 Lindemann, NE NE SE, 5-7-25, in the northwest section of Graham County, Kansas, 12 miles southeast of the Adell pool of Sheridan County. Surface pipe has been set. Tools of Brunson Drilling are being used making surface hole at the 1 Harter, SE SW SE, 8-21-13, 2 miles west of the Rothgarn pool in the northern part of Stafford County, Kansas.

Can-Tex Drilling Co. has spudded in the Imperial No. 124 well in Leduc field. Can-Tex has also obtained the contract for California-Standard's new Bantry wildcat 105 miles southeast of Calgary.

C-G Drilling Co. tools are making hole for Musgrove Petroleum Corp. et al, wildcat 1 Schade, NW NW NE, 16-22-12, 1 mile southeast of the Drach pool in Stafford County, Kansas. Depth was below 2,185 ft.

Virginia Drilling Co. has set casing on bottom of 3,750 ft., in its Ellis County, Kansas, wildcat 1 Krueger, SW SW SE, 23-13-19, 6 miles northeast of the Irvin pool and 4 miles northwest of Hayes, Kans.

Loffland Bros. will drill Lynn Oil Co.-Temple Hargrave 4 South Coast Corp., at Raceland field in Lafourche Parish, Louisiana, in Section 35-15s-19e. Contract depth is 10,500 ft.



Ohio Oil Co. recently completed erection of the 185 by 90-ft. all-steel drilling platform shown in this isometric drawing. It is located 6 miles offshore Freeport, Tex., in a water depth of 51 ft. Location is on a unitized block of 5,760 acres held one-half by Ohio and Melben Oil Co., and one-half by Humble Oil & Refining Co. Ohio is unit operator. There is a separate 70 by 81-ft. crew platform connected to the drilling platform by a bridge 80 ft. in length. The 188-ft. derrick is designed to withstand wind velocities of 125 miles per hour and the heavy-duty drilling equipment is rated to 15,000 ft.

PENBERTHY
"REFLEX"
WATER GAGE SET

For oil field, locomotive type and marine boilers. Water shows black — steam shows white; the water level is unmistakable. U-Bolt construction is strongest and simplest to service. Glass replaced by simply removing nuts on face of gage . . . unnecessary to work between gage and boiler. Conforms with A.S.M.E., Federal and State requirements when used for pressures specified by their respective codes.

This is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

USE 'BESTOLIFE
IT'S BETTER

'BESTOLIFE—the Lead Seal Joint Compound used successfully in the Drilling and Refining Industries for years — is immediately available through more than 100 distributors in the U.S.A.
Your nearest supply house field store probably has 'BESTOLIFE in stock for immediate delivery. Use 'BESTOLIFE — it's BETTER!
EXPORT: THE NATIONAL SUPPLY CORP., 30 ROCKEFELLER PLAZA, NEW YORK

I. H. GRANCELL
1601 EAST WASHINGTON STREET
LOS ANGELES CALIFORNIA

OWEN

ALL-STEEL TOOL BOXES

Now in 2 Sizes

PROVIDE SAFE, WEATHER-PROOF PROTECTION FOR VALUABLE TOOLS

	Type L	Type S
Length	7' 6"	5'
Width	3'	2' 6"
Height	3'	2' 6"
Skid Length	8'	6'
Weight	1100 lbs.	525 lbs.

Built of heavy gauge sheet metal . . . heavily braced at all edges and corners . . . cover fitted with piano-type hinge and steel handle with hasp for padlock . . . in open position lid held by safety catch . . . mounted on sturdy skids.

ORDER THE SIZE YOU NEED TODAY

OWEN TOOL COMPANY

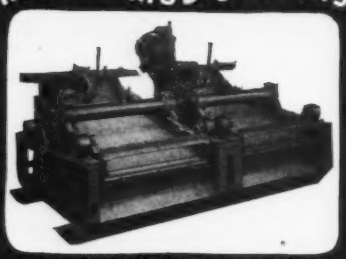
4718 WEST 18TH STREET V. 2-4341

HOUSTON, TEXAS

OVERSTROM

VIBRATING

ROTARY MUD SCREENS



OVERSTROM'S 2' x 4' and 3' x 4' dual and single unit mud screens, mainly used for shallow and medium drilling operations, have earned and won the acceptance of drilling operators throughout the world. The proven product of 25 years experience in designing vibrating screen equipment.

Also available in the 4½' x 5' heavy duty type for deep drilling operations.

Write to Oil Equipment Division for bulletin MS-20-B or see Composite Catalog.

OVERSTROM & SONS

ENGINEERS AND MANUFACTURERS

2213 West Mission Road

Alhambra, California, U. S. A.

Fred M. Manning, Inc.
Denver

F. M. MANNING

History. — Fred M. Manning, Inc., headquartered in the Continental Building, Denver, has been engaged in the drilling-contracting business since 1923, starting in Seminole, Oklahoma, field with one 4,500 - ft.-capacity steam rig. Until 1930, when Manning moved to Denver, operations were largely in Oklahoma, North Texas, and Louisiana, and included the drilling of the discovery well of Earlsboro, (Oklahoma) field. Since then, until recent years in which operations have been extended to California and back to Texas, drilling has been mainly in the Rocky Mountain States.

Equipment.—Currently, the company is running 36 strings of tools, including 8 in California where operations are carried on under the name of Coastal Drilling Co., a 100 per cent subsidiary. All are power rigs and range in drilling - depth capacities from 6,000 to 16,000 ft.

Other Operations. — In addition to drilling contracting, the company operates producing properties of its own in Stephens and Throckmorton counties, North Texas, and is a joint owner in numerous producing properties in the Rocky Mountain region. Production of properties it operates totals approximately 3,000 bbl. daily. In connection with its own producing properties, it operates two repressuring plants and is building three gasoline and L.P.G. plants.

Personnel. — Prior to entering the contracting business in 1923, Manning worked around the oil fields of North Texas, Oklahoma, and Louisiana, starting as a roughneck in the old Petrolia field in 1916. Associated with him in the present firm since the war are his two sons, Fred M., Jr., and Robert L. Other officers include V. W. (Bill) Flennike, vice president in charge of drilling, Denver; R. J. Dilger, vice president in charge of Texas operations, Fort Worth; T. B. Sterling, secretary, and K. E. Saltgaver, treasurer, Denver; R. J. Todd, assistant secretary, Fort Worth; and J. J. Brooks, secretary-

VARCO

DRILL COLLAR CLAMP

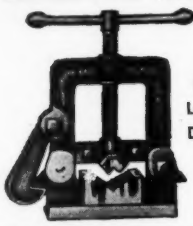
A safety device as well as a universal set of slips. No drill collar slips needed if used with heavy plate atop the master bushing. Movable slip inserts with VARCO buttons, complete within itself; no extra parts needed. For drill collar sizes 4½" to 8" inc. Chrome alloy heat treated steel. Write for complete data.

Abegg & Reinhold Co.

2533 EAST 26TH STREET
LOS ANGELES 11, CALIFORNIA
1502 Maury St., Houston 10
418 S.E. 29th St., Oklahoma City 9
356 No. Wolcott St., Casper, Wyo.
Export: 617 So. Olive St.
Los Angeles 14, Calif.

ARMSTRONG BROS.

BETTER PIPE TOOLS

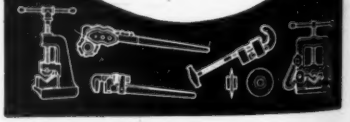


Stocked by Leading Tool Departments

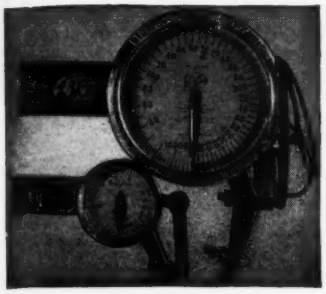
"ARMSTRONG BROS." Pipe Vises are built for lifetime service with *unbreakable* drop forged steel hooks. Other design improvements include: oval handle ends (will not pinch hands), replaceable tool steel jaws with milled teeth, and on sizes 70 and 71, a solid 1-piece jaw that prevents kinking of small pipe. There are always extra quality features in an "ARMSTRONG BROS." Pipe Tool.

ARMSTRONG BROS. TOOL CO.
5204 W. Armstrong Ave., Chicago 30, U.S.A.

Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.
Pacific Whse. and Sales Office: 1275 Mission St., San Francisco 3, Calif.



LINE SCALES



(Above) Super 500,000-lb. capacity, 14" dial. (Below), Packer Special, Capacity 40,000 lbs., 6" dial. 18 other models for every drilling, well servicing, or work-over need.

20 MODELS to choose from

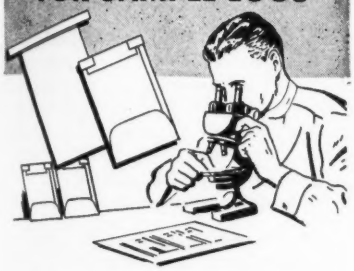
With a LINE SCALE you know the pull on the line, and the weight on the bit in pounds. Repeated tests prove the accuracy and dependability of LINE SCALE readings under all working conditions . . . even in areas of rapid temperature changes.

LINE SCALE CO., Inc.

Box 4245 **Oklahoma City** Ph. 6-1765

Gulf Coast Representative: Hiram Wheeler
Box 8043, Houston 4, Texas — J2-1107

METAL FLAP ENVELOPES FOR SAMPLE LOGS



It cost money to collect those samples...they are worth protecting. Tension Metal Flap Envelopes resist wear, assure long, safe storage...runs and re-runs. Their rustproof bar and waterproof gum give years of service and protection. For samples write

TENSION ENVELOPES
TRADE MARK REGISTERED

TENSION ENVELOPE CORP.

Kansas City 8, Mo.
19th & Campbell HArrison 0092

treasurer (Coastal Drilling Co.), Los Angeles.

A recent addition to the Manning firm is David D. Dellinger, formerly treasurer and vice president in charge of finance for Continental Supply Co., Dallas, Tex. Dellinger recently resigned to join the Manning organization as vice president in charge of finance. His appointment is effective November 1.

Other key personnel are: Charles T. Whitney, general superintendent of California operations, Los Angeles; C. J. Grant, general superintendent, and J. Burk Harrell and S. W. Barrett, assistant superintendents, Rocky Mountain operations, Casper, Wyo.; Al Ballard, Fort Worth, manager of gasoline and repressuring plants; F. M. Wright, Cisco, Tex., superintendent of gasoline plants; E. L. (Eddie) Gerhardt, Breckenridge, Tex., chief production engineer; Clarence Ferrero, Breckenridge, chief geologist, Texas division; and J. G. Wooten, Graham, Tex., head of the Texas land department.

Sidelights.—At Casper the company owns and operates through a 100 per cent subsidiary (Western Oil Tools Co.), one of the largest machine and repair shops west of the Mississippi River. C. W. Sissman is general manager.

The company operates three airplanes.

Commonwealth Drilling Co. has been awarded drilling contract for the Socony-Craigmyle No. 1 wildcat situated about 90 miles northeast of Calgary, and for the Pacific-Sunray No. 1 venture about 45 miles north of Edmonton.

Noble Drilling Co. has brought two National 75 heavy-duty rotary rigs into Alberta. They will go to work for Imperial Oil, Ltd., on exploratory drilling. One has been assigned to Imperial-Clairmont No. 1 wildcat near Grande Prairie in northwest Alberta.

Western Drilling Co. was preparing to move in rotary to drill Morgan, Aikman & Co.'s 1 Tom Henderson, NW NW Section 26, Block L, GH&SA Survey, a 1-mile southeast outpost to Page field of Schleicher County, West Texas.

Newman Brothers are rigging up an 8,000-ft. wildcat test in A.B.&M. Survey 47, in Medina County, Texas, for Humble Oil & Refining Co. The test 1 Wilson is located approximately 6½ miles southwest of Yancy.

Falcon Seaboard Drilling Co. has contract to drill William Helis 1 Louisiana State Rice Milling, wildcat test, in Jefferson Davis Parish, Louisiana, to a depth of 11,000 ft. This test is located in Section 41-9s-3w.

"You can always Break the joint"

Prepared especially for proper lubrication and protection of Tool Joint threads. Jimmie Gray's 500 Ton Tool Joint Compound* prevents washouts and galling . . . makes breaking-out easier . . . withstands highest pressures and is unaffected by heat and moisture.

Sold by Supply Stores, Everywhere.

Distributed by

STANDARD OIL SALES CO.

P. O. Box 203 Charter 4-5648
Houston 1, Texas
*Trade Mark Reg. U. S. Pat. Off.

Tiger Tooth
TONG DIES

Web Wilson "TIGER TOOTH" Tong Dies have a pyramidal, pointed tooth pattern that assures a positive, "biting" grip on the hardest tool-joints under the strongest pulls. Especially recommended for flame-hardened and hard metal surfaced tool joints or wear subs. The sloping sides and heavy base of the pyramidal shaped teeth gives extra strength and backing to each tooth. Tiger Tooth Tong Dies will not easily break down even in severe service. They are of the "full-length" design that completely fills die slot in the tong and are reversible to provide extra service life..."TIGER TOOTH" Tong Dies will fit all tongs used in the oil fields today—for dependable, economical service, specify WEB WILSON "TIGER TOOTH" TONG DIES.

WEB WILSON

W. W. Wilson Bldg.
Huntington Park
California

Oil Tools

Insure Your Well Investment

with

Easy-Pumping, Hard-Setting

UNAFLO

Your well, tools and equipment get top protection when you use Unaflo—the cement with the delayed, the postponed, the retarded set. For routine or hazardous work, Unaflo remains fluid and pumpable for the entire period of retardation, even at high temperatures and pressures, and with heavy slurries. Unaflo's retarded set provides *ample* time, during normal operations, to get the cement in place; *extra* time, in emergencies, to correct the causes of trouble. Then it hardens to a dense, impermeable seal.

Send for further information.

WACO
KANSAS CITY • BIRMINGHAM
CHICAGO • NEW YORK

Export Distributors:
United States Steel Export Company, New York

OG-U-96

UNIVERSAL ATLAS CEMENT COMPANY

OIL-FIELD CEMENTS

Unaflo Retarded Oil-Well Cement
Resistant to Sulfate Waters
Atlas Portland Cement—Type I
Atlas Portland Cement—Type II
Resistant to Sulfate Waters
Atlas High-Early Cement—Type III

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—ABC Network*

Exploration and Drilling

Utah Gets a Third Oil Strike Down in SE Corner

UTAH seems determined to get into the oil-producing business in a big way, after many years of disappointing results. After having successful wildcats come in within the past few weeks in the southwest and northeast corners of the state, we now have the results of a third, this time in the extreme southeast corner, near the four-state corner area.

Western Natural Gas Co., Bryd-Frost, Inc. et al 2-C English, SE SE NW 22-43s-22e, San Juan County, Utah, in the Boundary Butte area, is bailing high-gravity oil at the rate of 100 bbl. per day from a pay believed to be the Coconino sandstone at 1,514 ft., total depth.

The well had a show of oil at 1,504 ft., and 1,507-09 ft., and looked good for a 10-bbl. well. Drilled finally to present total depth of 1,514 ft., it started bailing about 6 bbl. per hour of 42.7°-gravity oil, and late reports estimate it is good for 100 bbl. per day. Top of the Coconino is given at 1,490 ft., with a surface elevation of 5,434 ft. (? altimeter ?).

The new discovery is 1,800 ft. south of 1-C English, drilled earlier this year to 6,090 ft., a well which showed for commercial production in the shallow Coconino, but which was not tested in that horizon.

In 1923, Southwest Oil Co. drilled the 1 Harrison in 22-43s-22e, and reported a promising show of oil at 1,565 ft., but after mechanical difficulties developed, the well was abandoned. A second well was later started by this company, in SW SW NW 22-43s-22e, and then taken over by Continental Oil Co. and Midwest Refining Co., and carried to a depth of 5,612 ft. This latter well reported the Coconino at 1,650 ft. It also reported shows of gas in 12 formations, and oil shows in 6, with gas estimated as high as 15,000,000 cu. ft. per day. It also developed oil production of about 30 bbl. daily in the Shinarump conglomerate, which went to water.

The present owners of the discovery are reported to have a solid block of about 10,000 acres and plan to develop the shallow pay, if it holds up as well as they anticipate.

Regionally this new strike would appear to lie in the Black Mesa basin, the greater part of which is in northern Arizona. The Black Mesa basin is separated from the better known San Juan basin of Northwest New Mexico and southwestern Colorado by the Defiance uplift.

The strike will intensify the interest which has gradually been building up in the whole four-state corner region, as evidenced by the increasing number of companies with representatives headquartering in Durango, Colo.

References

U.S.G.S. Professional Paper 164, Geology of the Kaiparowits region, by H. E. Gregory and R. C. Moore. Geology of the San Juan Oil Field, Utah, U.S.G.S. Bulletin 471, by E. G. Woodruff. Geologic Structure of San Juan Canyon and Adjacent Country, Utah, U.S.G.S. Bulletin 751, by H. D. Miser. Geology of the Monument Valley-Navajo Mountain Region, San Juan County, Utah, U.S.G.S. Bulletin 865, by Arthur A. Baker.

HIGHLIGHTS OF WEEK'S DEVELOPMENTS

SOUTH LOUISIANA. — A 33-ft. oil section has been reported at Humble Oil & Refining Co. 1 Pelican Island State Lease Account No. 1, Block 30, 8 miles offshore and 12 miles south of the Bastian Bay field. Total depth is 2,586 ft., and oil saturation was encountered from 2,152-85 ft.

TEXAS GULF COAST.—Stanolind Oil & Gas Co. 2-144 State Lease 31602, Gulf of Mexico, offshore Galveston County, approximately 15 miles northeast of Galveston, recovered one stand of black oil, one stand of oil and gas-cut mud and three stands of water on drill-stem test through perforations at 1,598-1,604 ft. These perforations were squeezed and operators will reperforate for another test.

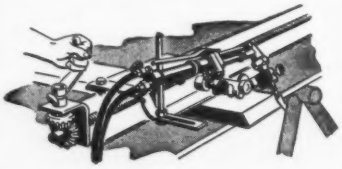
WEST TEXAS.—Forty miles south and east of Reef limestone production in the Jameson field, J. J. Perkins and Sun Oil Co. 1 Claude Linthicum was thought to have discovered oil in the same formation when it recovered 568 ft. of clean oil on a 55-minute drill-stem test. The Tom Green County wildcat, located 4 miles west of San Angelo, drilled limestone of Pennsylvanian age from 5,480-5,520 ft., then shale to around 5,530 ft., and limestone to 5,550 ft. Derrick-floor elevation is 2,009 ft. The test also recovered considerable salt water and operators were to retest the bottom 20 ft. to determine the water table.

NORTH TEXAS. — New activity around old areas and a repealed ordinance against town lot drilling within the Eastland city limits, are expected to spur a new drilling play in Eastland County.

ROCKY MOUNTAIN.—The Texas Co.'s third Adon well, Campbell County, Wyoming, is an apparent failure in the Minnelusa. Pacific Western Oil Co.'s 1-mile southwest extension to the Pilot Butte field, Fremont County, Wyoming, recovered oil on drill-stem test. The well is south of faulting and will probably develop a new pool in the area. Continental Oil Co. has suspended operations on its second Sussex, Johnson County, Wyoming, well after failing to find Lakota sand production, and has made location for a third well. Carter Oil Co. continues to test thin saturated sands at the Vernal, Utah, wildcat but no commercial production has resulted.

NOW YOU CAN MACHINE-FEED YOUR WELDING TORCH

C&H STRAIGHT LINE CUTTER



A portable tool. Lies flat on work. Accurately machine-feeds by hand any size torch tip along straight line. Cuts like milling cutter. Can bevel or scarf; squarely cuts-off plates, rods and bars. Makes cleanest job. Pays for itself on one good sized job.

Write for descriptive bulletin.

Manufactured and distributed by

J. A. CAMPBELL COMPANY

645 E. Wardlow Rd., Long Beach 7, California

PELCO

Welding Saddles

Specify PELCO

Immediate Delivery

OUTLET (OR NOZZLE) SIZES ¼" to 16"

HEADER (OR LINE) SIZES UP TO 36"

ORDER THROUGH YOUR FAVORITE SUPPLY HOUSE

PELICAN WELL TOOL & SUPPLY CO.

P. O. Drawer 1108 Shreveport (84), La.

PERMIAN BASIN

Gains County May Get Devonian Discovery

MIDLAND.—Gains County had a prospective Devonian discovery in the making last week at Shell Oil Co., Inc., 1 Hawkins, about 15 miles southeast of Seminole and 15 miles east of The Texas Co., Humble Oil & Refining Co. and Lowe 1 Jenkins, recent Devonian discovery, and the nearest producer from that section. The 1 Hawkins ran a 1-hour drill-stem test at 10,272-328 ft., reportedly covering the entire Devonian limestone penetrated at the time, which recovered 59 bbl. of clean oil, with no water. It was drilling ahead to determine the extent of pay. It was not known whether it would go to the original objective of 12,500 ft., or Ellenburger. Flowing bottom-hole pressure during the test ranged from 205-1,545 psi., and shut-in pressure after 15 minutes was 4,200 psi.

Interest in Scurry County was mounting, as at least four wildcats reported various oil shows. Fifteen miles northeast of Snyder, American Republics Corp. 1 Susie Koonsman entered the Ellenburger at 7,410 ft. First drill-stem test, from 7,408-26 ft. blew air for 2 minutes and recovered 8 ft. of drilling mud in 1 hour. The second test, from 7,424-46 ft., blew air for 7 minutes and recovered 5 ft. of mud very slightly cut with oil and gas. Operators were to drill another 30 ft. and test again.

Standard Oil Co. of Texas 1 Jesse Brown, in northcentral Scurry County, was drilling below 6,120 ft. in Pennsylvanian shale. Cores from 6,058-72 and 6,072-78 ft. yielded sand and shale having slight oil stains. A 17-minute drill-stem test from 6,032-43 ft. recovered 30 ft. of oil and gas-cut mud, 90 ft. of heavily oil and gas-cut mud and 80 ft. of mud-cut oil. A second test from 6,030-58 ft. recovered 1,310 ft. of 41.8°-gravity oil, plus some mud-cut oil, in 2½ hours.

Magnolia Petroleum Co. 1 Winston, 3½ miles southwest of Snyder, showed for possible production in the Pennsylvanian after washing the section at 7,429-42 ft. with 250 gal. of mud acid. After swabbing most of the acid residue, the well kicked off and flowed 27 bbl. of oil in 8 hours, through ¼-in. choke. Shakeout was 3.8 per cent sediment. It continued to flow to clean out. Previously it swabbed 52.2 bbl. of 36.4°-gravity oil and 8 bbl. of water in 19½ hours. It was dry in the Ellenburger at 7,842-7,905 ft. Nine miles northwest of Snyder, Standard of Texas 1 Brown reported 5 ft. of oil-bearing sand between 6,132-39 ft., and other shows at 6,148-53 and 6,166-18 ft. Drilling stopped at 6,177 ft. in sand, to run electrical survey and drill-stem test.

In western Upton County, Standard of Texas was to start immediately on ¼-mile north offset to Wilshire Oil Co.'s 1 McElroy Ranch (now 23-148 McElroy), and currently shut in for additional storage. Standard's test will be the 1-148 McElroy, 1,980 ft. from north and west lines, Section 148, Block E, CCSD&RGNG Survey, 6 miles northeast of Crane. It will explore the Wolfcamp to 8,100 ft. One and one-half miles northeast of Wilshire's discovery, that company's 42-135 McElroy (originally drilled as Standard of Texas 1 McElroy), was scheduled to deepen.

WEST TEXAS (DISTRICTS 8 & 7-C) SUCCESSFUL WILDCATS

Cochran County: Anderson-Prichard Oil Corp. 1 Ford Hawkins, Tract 17, Subd. 2, League 131, Carson CSL Sur., 12 mi. SW Morton, flowed 39.7 bbl. of 29°-gravity oil a day, 1-in. choke, San Andres 4,838 ft., TD 4,980 ft., elev. 3,798 ft.

Hockley County: Woodley Petroleum Co. 1 J. J. Anderson, Sec. 10, Blk. A, R. M. Thompson Sur., 3 mi. NE Smyer, pumped 156 bbl. of 26°-gravity oil a day, top Glorietta 5,100 ft., top pay 5,825 ft., TD 5,979 ft., elev. 3,386 ft.

Mitchell County: Kingery Bros. and South Texas Development Co. 1 Merritt & Pond, Sec. 27, Blk. 29, T&P Sur., 3 mi. N Iatan North field, pumped 21½ bbl. of 28°-gravity oil a day, San Andres 2,461 ft., TD 2,829 ft., PB 2,730 ft.

WEST TEXAS (DISTRICTS 8 & 7-C) WILDCAT FAILURES

Andrews County: R. M. Pair 1 Frank Orson, Sec. 28, Blk. 3, PSL Sur., 6½ mi. SE Andrews, dry, TD 5,510 ft., Yates 3,380 ft., San Andres 4,910 ft.

Crockett County: Humble Oil & Refining Co. 1 J. A. Harvick, Sec. 80, Blk. GH, GC&SF Sur., 6½ mi. NE Ozona, dry, TD 9,160 ft., Wolfcamp 5,800 ft., Ellenburger 8,975 ft., elev. 2,521 ft.

Humble 1 Melissa C. Smith, Sec. 17, Blk. 1, GC&SF Sur., 14 mi. NE Ozona, dry, TD 9,125 ft., Wolfcamp 5,500 ft., Ellenburger 8,075 ft., elev. 2,466 ft.

Gaines County: Guy Mabee Drilling Co. 1 H. McCrea, Sec. 372, Blk. G, CCSD&RGNG Sur., 12 mi. NW Seminole, dry, TD 7,503 ft., anhydrite 2,195 ft., San Andres 4,860 ft., elev. 3,479 ft.

SOUTHEASTERN NEW MEXICO

HOBBS.—In Chaves County, Barnsdall Oil Co. 1-A State, 23-8s-32e, reported a drilling break at 10,924 ft., and had apparently stopped to test. It cored 3 ft. of broken limestone with no shows from 10,926-931 ft. Magnolia Petroleum Co. 1 Turney 23-14s-22e, was drilling below 4,825 ft., and said to be running high, on the basis of tentative tops. Humble Oil & Refining Co. 1 Gorman-Federal, 30-15s-22e, was drilling red shale below 3,287 ft. Top of the Abo section had not been picked on last report.

Eddy County.—Magnolia 1 Foster Unit, 26-20s-23e, was drilling lime at 3,210 ft. About 2 miles southwest of the Russell field, Carper Drilling Co. 1 Spencer was completed as a shut-in gas well for 100,000

Are You WORRIED About Keeping Records

There is a KRAFTBILT business record form for every oil office and field need. In stock, ready for immediate shipment in any quantity, small or large. Save time and money by using KRAFTBILT Forms.

WRITE TODAY FOR CATALOG

Kraftbilt **ROSS-MARTIN CO.**

423 E. 4th St. TULSA, OKLA.

For QUICK DELIVERY

Gears of all types

- *Quality Controlled*
- *Strength*
- *Quiet Operation*

We make gears of all types from your choice of materials. Large or small orders are given prompt attention.

Frank MATHEY MACHINE WORKS Inc.

Phone 2-9375

114 So. Elgin Tulsa, Okla.

TO SUIT THE

Executive taste

SUN DRENCHED

Send an "Executive Basket" to business friends. Solve Holiday Gift problems quickly, inexpensively and completely! Unique, hand-woven Mexican basket is filled with jumbo size luscious Pink-Meat seedless Texas Grapefruit and Oranges packed in a strong, corrugated carton. Send gift list on your letterhead with remittance.

$5.50 EACH, COMPLETE AND PREPAID

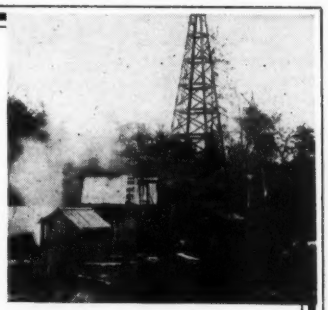
An appropriate card with your name enclosed in each basket. If you prefer, use your personal greetings, sent with order.

John Mothershed's

GOLDEN CITRUS GROVES

BOX 893- O SAN BENITO, TEXAS

The epic beginnings of the Pennsylvania oil industry



AS RECORDED BY ONE OF AMERICA'S PIONEER PHOTOGRAPHERS

Early Days of OIL

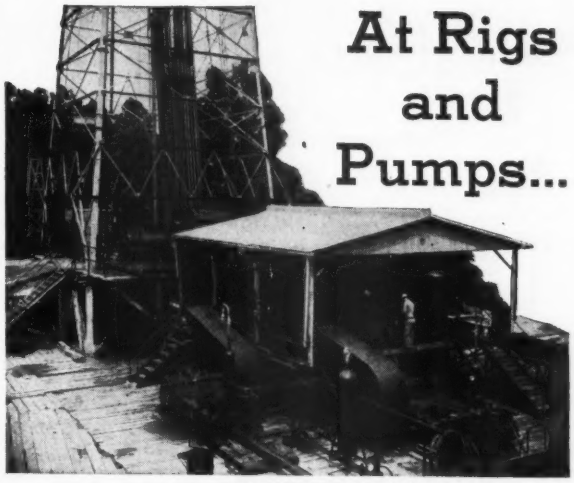
A PICTORIAL HISTORY

365 Photographs by JOHN A. MATHER. Text by *PAUL H. GIDDENS.* From the priceless collection in the Drake Museum. The picture-story of one of the nation's most colorful eras—the great oil men, their wells and equipment, boom towns and disasters. *$6.00*

At your bookstore

PRINCETON UNIVERSITY PRESS

Princeton, N. J.



At Rigs and Pumps...

PHOTO COURTESY STANDARD OIL CO. (N.J.)

...men say "WICO" instead of "Magneto"

And well they may, for the reputation of WICO magnetos has led all the rest for two score years wherever oil comes in. Oil men know that in sand or swamp, however rough the conditions, WICO magnetos deliver the hot, strong, reliable spark that's the heartbeat of the engine.

WICO magnetos stood the test of years of use on all kinds of internal combustion, spark-ignited engines in oil fields all over the world. Every new WICO model is tested for days in a "dust bowl" at the laboratory where extra fine, highly abrasive sand sweeps around the operating magneto. In a nearby humidity box, with 100° temperature and 95% humidity, each WICO model runs continuously day after day — for thousands of hours — while moisture drops on and from it.

No wonder men at the rigs and pumps say "WICO" instead of "magneto". That way they *know* they'll get topflight magneto performance.

Trained field engineers and more than two thousand authorized service stations serve WICO users everywhere. Wico Electric Company, West Springfield, Massachusetts.

SINCE 1897

WICO

DEPENDABLE IGNITION

PETROLEUM ENGINEERS
CABLE & STINE
WICHITA FALLS, TEXAS

EXPERIENCED PRACTICAL
AND TECHNICAL CONSULTING
PRODUCTION ENGINEERING
SERVICE

•

SPECIALIZING
in
MODERN
SECONDARY
RECOVERY

GERONIMO

FOR THE SAFETY OF YOUR MEN

DERRICK ESCAPE MECHANICISM

NET WEIGHT 15 LBS.

GLIDE TO SAFETY ON GERONIMO
(Patent Applied For)

GERONIMO will stand hardest wear and give unfailing protection to refinery and derrick men whose lives are endangered by fire, escaping gases or other hazards.

EASILY ATTACHED OR REMOVED
EXTRA STURDY CONSTRUCTION
QUICKLY STRADDLED
POSITIVE, INSTANT BRAKE
BRONZE "No-Spark" SURFACES
RECOMMENDED FOR ½" WIRE LINE

• Write for Illustrated Folder •

SOLD THROUGH YOUR SUPPLY STORE
— MANUFACTURED BY —
CHARLIE'S MACHINE WORKS
PERRY, OKLAHOMA

cu. ft. of sour gas a day. It completed in the Yates sand at 706-803 ft.

Lea County: Northeast of Crossroads, Magnolia 1 Cox-Federal, 1-9s-36e, was drilling lime and anhydrite at 3,370 ft. Three miles southwest of Crossroads, Magnolia 1 Yates-Federal, 31-9s-36e, plugged back to 4,808 ft. and was waiting on cement after squeezing on a faulty casing job at 1,810-17 ft.

Drilling wells in the Crossroads area were: Magnolia 1-C Santa Fe-Pacific, 26-9s-36e, drilling below 10,375 ft. Mid-Continent 1 Dessie Sawyer, 27-9s-36e, drilling at 10,658 ft. Skelly Oil Co. 1 U. D. Sawyer, 33-9s-36e, drilling below 10,878 ft. with no tests or tops reported. Mid-Continent 1-B Sawyer, 34-9s-36e, was drilling at 11,096 ft. It reported top of the Pennsylvanian Strawn at 10,550 ft.

SOUTHEAST NEW MEXICO SUCCESSFUL WILDCAT

Eddy County: Harper Drilling Co. 1 Spencer, NW SW SW 27-20s-28e, E of Scanlon gas field, flowed 100,000 cu. ft. of gas a day, open casing, TD 856 ft., PB 803 ft., top of pay 760 ft., elev. 3,220 ft.

SOUTHEAST NEW MEXICO WILDCAT FAILURES

Chaves County: Richfield Oil Corp. 2 Comanche Unit, NE NE 24-11s-26e, dry, TD 6,330 ft., PB 6,110 ft., pumped 19 bbl. oil and 9 bbl. salt water, San Andres 1,015 ft., Glorietta 2,190 ft., Abo 4,470 ft., Hueco 5,200 ft., Devonian 6,085 ft., Ellenburger 6,318 ft., elev. 3,672 ft.

Eddy County: Roach & Shepard Drilling Co. 1 Gates, SE SE SE 10-25s-26e, dry, TD 2,107 ft. in sand, Delaware 1,870 ft., elev. 3,372 ft.

N. CENTRAL TEXAS

Eastland County to Get Townsite Drilling Play

WICHITA FALLS. — A townsite drilling campaign is expected at Eastland, Eastland County, West Central Texas, brought on by the revival of extensive oil play in the immediate area, the new Cisco Mississippi play a few miles to the west, and the recently repealed city ordinance which prohibited drilling inside the city. Locations inside the city limits have not been made as yet, but Frank Day, local oil operator, was reported to have made location for an Ellenburger test on the Will Martin farm, although complete description was not available. The general location would place it north of the old Martin field, where prolific producers were brought in 20 to 25 years ago, many of which are still yielding oil, from the lower Pennsylvanian.

In Clay County, the Joy (Strawn) field was in line for a 1-mile southeast extension at L. T. Burns 2 J. Gilbert, Thompson Survey. The well was originally drilled to 4,078 ft. in 1944. Deepened to a sand at 4,439-51 ft., a drill-stem test brought gas to the top in 16 minutes and in 90 minutes recovered 1,100 ft. of oil and 30 ft. of oil-cut mud. Operators set casing to 4,438 ft. for further tests.

Another extension well reported for the week was Davon Oil Co. 1 W. J. Dees, 1-mile west outpost to the Vineyard field of Jack County. Details of a drill-stem test from 4,972-86 ft. were not available on last report, but it was said the well flowed oil when the testing tool was opened. Total depth was 6,490 ft. in the Ellenburger.

In Archer County, Fain & McGaha 2 W. L. King, west offset to the company's 1 King, completed as a pumping discovery in the North Chalk Hill field pay, was drilling ahead below 3,900 ft. after recovering oil on a drill-stem test at 3,764-76 ft. Gas came to the top in 5 minutes, and in 1 hour the recovery was 1,500 ft. of oil, 65 ft. of oil-cut mud and 10 ft. of fresh water. Bottom-hole pressure was 1,475 psi. in 15 minutes.

Star Oil Co., Inc., 1 J. B. Anderson, Section 21, D&DA Survey, 4½ miles southwest of Gorman in Comanche County, was showing for a new Marble Falls producer when it made 47½ bbl. of 40°-gravity oil in 24 hours on the pump, from a section at 2,546-2,850 ft., total depth. In the same area, Edgar B. Davis of Luling, 1 W. M. Hanson, William Bowers Survey, was to be abandoned at 4,040 ft., 4 ft. in the pre-Cambrian. It had top of the Ellenburger at 3,190 ft., which carried oil shows at 3,188 and 3,600 ft.

NORTH CENTRAL TEXAS (DISTRICTS 9 & 7-B) SUCCESSFUL WILDCAT

Throckmorton County: Warren Oil Corp. 1 J. T. Davis, Sec. 163, BBB&C Sur., 8 mi. SW Throckmorton, pumped 66 bbl. 43°-gravity oil a day, perf. 4,621-30 ft. and 4,716-40 ft. in Caddo topped at 4,522 ft., GOR 467 cu. ft.

NORTH CENTRAL TEXAS (DISTRICTS 9 & 7-B) WILDCAT FAILURES

Archer County: R. G. Dublin 1 J. L. Prideaux, J. Walker Sur., A-676, 10½ mi. SE Anarene, dry, TD 772 ft., oil shows in broken sand 687-689 ft. and 704-726 ft.

Dud Wood Drilling Co. 1 J. H. Turbeville, Jefferson CSL, 3 mi. NE Anarene, dry, TD 1,153 ft. in sand and shale.

W. G. Gouchie 1 G. A. Moore, A. T. Akers Sur., 1½ mi. SE Archer City, dry, TD 1,255 ft., oil show 1,238-43 ft.

Baylor County: M. L. Richards 1 J. W. Fite, Sec. 10, H&TC Sur., 6 mi. SE Seymour, dry, TD 3,037 ft.

Brown County: Frank Wood 1 T. M. Hays, Jr., C. Bannister Sur., 3 mi. SW Thrifty, dry, TD 1,500 ft., oil show in sand at 1,332-47 ft.

Callahan County: Fowler Farm Oil Corp. 3 J. S. Hart, Sec. 59, BOH Sur., 7 mi. NE Baird, dry, TD 539 ft.

Comanche County: Newton & Hughes 1 C. W. Houser, Lampasses CSL, 3½ mi. SW Sipe Springs, dry, TD 3,384 ft., Caddo 2,320 ft., Marble Falls 2,724 ft.

For Comfort Courtesy Convenience
in ST. LOUIS . . .
HOTEL Mayfair
8th & St. Charles
DOWNTOWN ST. LOUIS AT YOUR DOORSTEP
Radio in every room at no extra charge
Rooms from $3.50. Garage Service
Write for handy rate folder OG

Ellenburger 3,180 ft., cored oil and gas shows 2,735-39, 2,878-82 ft., elev. 1,563 ft.

Cooke County: Russell Maguire 1 A. C. Enderby, T. Carson Sur., 4 mi. S Myra, dry, TD 1,906 ft.

Foard County: S. D. Johnson 1 M. L. Hughston, Sec. 308, Blk. A, H&TC Sur., 6 mi. SE Crowell, dry, TD 5,850 ft., Canyon lime 3,529 ft., Ellenburger 5,828 ft.

Haskell County: Scott Bros. 1 T. G. Hendrick, Indianola RR Sur., SE corner of county, dry, TD 3,004 ft.

Jones County: Manley Bros. et al A. E. Harvey, Sec. 9, Blk. 14, T&P Sur., 2½ mi. E Nugent, dry, TD 2,010 ft.

Robert L. Rawl & Associates 1 M. T. & H. H. Ramsey, Sec. 80, Blk. 14, T&P Sur., 7 mi. NE Abilene, dry, TD 2,055 ft.

Wichita County: Lester Miller 1 R. J. Bradley, Jr., T. E. Williams Sur., 15 mi. E Electra, dry, TD 2,011 ft.

Wilbarger County: Frank Wood 1 Andrews, Sec. 80, Blk. 14, H&TC Sur., 7 mi. S Vernon, dry, TD 2,565 ft.

EASTERN TEXAS

Humble Tests Perforations At Smith County Wildcat

DALLAS.—Humble Oil & Refining Co. started testing perforations at its 1 Sackett, Smith County wildcat, 1½ miles south of Flint in the Ventura Tejeda Survey. Total depth was 10,600 ft., plugged back to 9,776 ft. with perforations at 9,582-9,602 ft., 9,623-36 ft., 9,655 ft. and 9,712 ft., and packer at 9,461 ft. when the 5,000-gal. treatment was finished, and the well immediately started unloading water cushion. In 10 minutes it was blowing acid water and 3½ hours later started making a small amount of gas and oil until shut in. In Anderson County, Humble cored limestone with no shows to 10,671 ft., and prepared to core ahead.

Standard Oil Co. of Texas 1 T. E. Acker, northwest of Maydelle in Cherokee County, was conditioning hole at 8,678 ft., total depth, after coring some porosity and good gas and distillate odor at 8,665-78 ft., in the Rodessa. With packer set at 8,654 ft., a 45-minute drill-stem test brought gas to the top in 18 minutes, registering a maximum surface pressure of 350 psi., shut in. Recovery was 90 ft. of mud, plus the water cushion, which it unloaded after pulling 56 stands. Flowing bottom-hole pressure was 1,475 psi.

Union Producing Co. 1 J. M. Travis, 3 miles southeast of Mount Selman in Cherokee County, began to flow acid and wash water after 2 hours of swabbing following a second acid treatment of Rodessa perforations at 8,416-23 ft.

Arkansas Fuel Oil Co. 1 Sarah B. Adams, East of Garrisbn in Nacogdoches County, ran a 40-minute drill-stem test on perforations from 6,052-58 ft., with packer at 6,040 ft., and recovered 5,230 ft. of gas-cut mud, with strong distillate taste. Perforations were to be squeezed.

EAST TEXAS (DISTRICTS 5 & 6) SUCCESSFUL WILDCAT

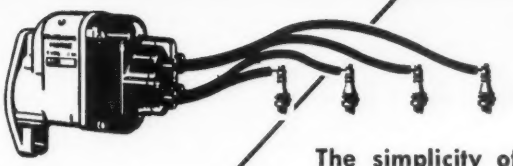
Anderson County: The Texas Co. 1 Hanks, Wm. Albright Sur., 3,250 ft. NE 1 Barnard, 7½ mi. NE Tennessee Colony, pumped 62½ bbl. of 44.3°-gravity oil Travis Peak 9,960-10,000 ft., TD 10,080 a day, plus some water, open hole in ft., PB 10,000 ft.

EAST TEXAS (DISTRICTS 5 & 6) WILDCAT FAILURES

Cherokee County: Geier-Jackson, Inc., 1 Whitman-Decker, I&GN Sur., 10 mi. SW Alto, N offset to 1 Southern Pine, dry, TD 5,525 ft., Midway 2,710 ft., Pecan 4,174 ft., Austin 4,990 ft., Woodbine 5,240 ft., Dexter sand 5,326 ft.

Watson W. Wise 1 J. B. Copeland, James Cook Sur., 10 mi. E Rusk, dry, TD 4,467 ft., Pecan 3,320 ft., Woodbine 4,307 ft.

Simplicity that pays off!



The simplicity of Fairbanks-Morse magneto ignition—no battery or generator, etc.—means lower upkeep expense, easier trouble-shooting, fewer delays, year in, year out.

. . . Your Magneto Ignition by

FAIRBANKS-MORSE

Sold and Serviced by Over 2,000 Experts

A HANDSOME CHRISTMAS GIFT!

The Texan

$4.50

F.O.B. Keith's Warehouse

The Texan, as illustrated, is a standard half-size box . . . filled with famous Texas Ruby-Red Grapefruit. A gift most suitable for many of your friends and business associates, as well as for your own family.

Just give us the names and addresses of those to whom shipments are to be made. We will do the rest. We'll package your gift . . . send a greeting card with your compliments . . . ship the gift so that it will be received at the proper time. The cost is low for such high quality gifts . . . and your shopping is done quickly, conveniently, easily.

For over 42 years the Ben E. Keith Company has served an exacting trade. Your satisfaction is guaranteed.

If you prefer, write for our beautiful 1948 catalog, in full process color, listing our complete line together with shipping weights and prices. No obligation, of course. Address the Ben E. Keith Co., Fort Worth.

Largest Distributors of Fresh and Frozen Fruits and Vegetables in the Southwest

BEN E. KEITH COMPANY

LISTEN FOR THE WHISTLE—WBAP—570

DALLAS FORT WORTH ★ LONGVIEW WICHITA FALLS ★ ABILENE LUBBOCK

HOW TO STOP THE HIGH COST OF HIGH MUD LINE PRESSURES

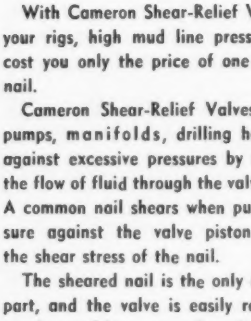
CAMERON
SHEAR-RELIEF
VALVE

With Cameron Shear-Relief Valves on your rigs, high mud line pressures will cost you only the price of one common nail.

Cameron Shear-Relief Valves protect pumps, manifolds, drilling hose, etc., against excessive pressures by releasing the flow of fluid through the valve outlet. A common nail shears when pump pressure against the valve piston reaches the shear stress of the nail.

The sheared nail is the only damaged part, and the valve is easily reset with another nail by any member of the crew, using directions on the valve nameplate for nail sizes and the pressure at which each size shears.

Write for complete details or see your Composite Catalog.



Cameron
IRON WORKS, INC.
P. O. BOX 1212, HOUSTON, TEXAS
Export: 74 Trinity Place, New York, N. Y.

Kaufman County: O. W. Killam 1 J. B. Freeman, G. N. Sawyer Sur., 5 mi. SW Scurry, dry, TD 3,766 ft., no tops reported.

Navarro County: P. T. Fullwood and W. O. Thornton 1 A. M. Boyd, BBB&C Sur., 2 mi. NE Eureka, dry, TD 1,726 ft., Pecan 1,599 ft.

TEXAS GULF COAST

East Hillister Field Opened by Humble

HOUSTON.—A new gas-condensate field in Tyler County has been opened by Humble Oil & Refining Co. 1 William Rice Institute. Total depth is 10,000 ft. with perforations at 8,260-270 ft. On a 10-hour initial test, the well flowed 27.8 bbl. of condensate, 22 per cent of which was salt water, through a ⅛-in. choke, flowing pressure on tubing 2,700 psi. Gas-condensate ratio was 29,750. The discovery is located in the Arthur Hutchins Survey, Abstract 846, approximately 8.1 miles northeast of Warren townsite. The area is to be known as East Hillister field.

Lloyd H. Smith Exploration Co. 1 Pattillo-Marshall et al Unit 1, northwest extension test at North Port Neches field in Orange County, flowed 110 bbl. of pipeline oil per day through a 6/64-in. choke on a 12-hour gage. Flowing pressure on tubing was 1,375 psi., casing pressure 1,500 psi. Gravity of the oil is estimated to be around 41°. Production is through perforations at 8,787-8,789 ft., with top of oil sand at 8,774 ft. This well is approximately 2,260 ft. northwest of nearest production in the field, and is in John Stephenson Heirs Survey. A new test, 1 H. P. Anderson et al Unit, has been staked by Smith Exploration, 1,600 ft. due northeast of the 1 Pattillo-Marshall, with projected depth of 9,000 ft.

Sun Oil Co. has completed the confirmation oiler in the Day field of Madison County in a new producing zone. The 1 J. L. Cleere, 2,500 ft. due east of the 3 G. D. Day, discovery well, pumped 25 bbl. of net oil, showing 42 per cent water, per day. Gravity of the oil is 22.8°. Production is through perforations at 2,371-2,372 ft. Total depth is 2,500 ft.

Magnolia Petroleum Co. 1 Maxine Means, new discovery gas-condensate well in Live Oak County, 7 miles south of Simmons City and 3½ miles east of the San Caja gas-condensate field, on 24-hour test through perforations at 7,247-52 ft., flowed 97 bbl. of salt water and 35 bbl. of clear condensate with 1,764,000 cu. ft. of gas per day, ratio 50,273. On a previous test through perforations at 8,820-25 ft., it flowed 31.9 bbl. of condensate in 12½ hours through ¼-in. choke. Operators are continuing to test. This well is in ACH&B Survey 157, in Section 90, Simmons Farm Tracts.

TEXAS GULF COAST (DISTRICTS 2 & 3) SUCCESSFUL WILDCAT

Madison County: New oil pay, Day field—Sun Oil Co. 1 J. L. Cleere, John Crownover Sur., TD 2,500 ft., top sand 2,371 ft., perf. 2,371-72 ft., IP: 25 bbl. oil per day net oil, on pump, gravity 22.8°.

TEXAS GULF COAST (DISTRICTS 2 & 3) WILDCAT FAILURES

Brazoria County: H. L. Hunt 1 Stella Russell, Francis Moore Sur., A-100, 6 mi. SW of Alvin, dry, TD 10,012 ft.

The Salt Dome Oil Corp. 1 A. E. Martin, 5 mi. E of Arcola, HT&B Sur., A-229, dry, TD 9,009 ft.

DeWitt County: Sunray Oil Corp. 1 Otto Fuhrken, Antonio Lazo Grant, A-653, 10 mi. S of Nordheim, 2 mi. NW of Slick field, dry, TD 4,451 ft.

Fayette County: Traders Oil Co. of Houston 1 Charley Fleck, Reubin Fisher Sur., 2½ mi. S of West Point, dry, TD 6,516 ft.

Gonzales County: The Chicago Corp. 1 Ed. Boehm Est., M. Putman Sur., 11 mi. NE of Dilworth, dry, TD 6,310 ft.

Matagorda County: Stanolind O. & G. Co. B-1 Buckner Orphans Home, Joseph Reese Sur., North Wadsworth area, dry, TD 13,000 ft.

Orange County: Houston Oil Co. of Texas 1 H. J. Lutcher Stark, T&NO Sec. 25, 4½ mi. NW of Mauriceville townsite, dry, TD 7,701 ft.

Placid Oil Co. 3 William Winfree, Claiborne West Sur., Winfree discovery area, dry, TD 7,900 ft.

Refugio County: Hewit & Dougherty 1

BARRET

SPECIALIZING IN MAGNETIC SURVEYS

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.

William M. Barret, Inc.
Consulting Geophysicists
GIDDENS-LANE BUILDING
SHREVEPORT, LOUISIANA

Why THE INDUSTRY'S LEADING CENTRIFUGE?

BECAUSE:

Heavy duty, ruggedly constructed and extremely simple in design . . . Gets quick, accurate results . . . Produces required speed with less effort . . . Cranks and heads of 100 CC and 15 CC size machines interchangeable . . . Meets *A.S.T.M. Standard Method D-96* and *A.P.I. Code No. 26* requirements.

W·H·CURTIN & CO. Inc.
DEPT. "C"
HOUSTON, TEXAS . . . NEW ORLEANS, LA.

F. V. W. Heard Est., James Power Sur., A-50, 4 mi. W-NW of Refugio, dry, TD 6,015 ft.

Waller County: H. L. Hunt 1 C. H. Menke, H&TC Sur., A-180, 6 mi. SE of Hempstead townsite, dry, TD 8,012 ft.

Wharton County: M. M. Miller et al 1 G. G. Kelley Est., R. A. Rogers Sur. A-910, 15 mi. W of El Campo townsite, dry, TD 7,003 ft.

SOUTH LOUISIANA

Calcasieu Parish Gets Discovery

NEW ORLEANS.—A new oil discovery in the Moss Lake area of Calcasieu Parish has been completed at The Union Oil Co. of California 1 D. C. Powell, Section 5-11s-9w. Drilled to a total depth of 9,303 ft., with perforations at 8,569 ft. level for completion, the well flowed at the rate of 180 bbl. of 34.8°-gravity oil per day, through a ⅛-in. choke. Flowing pressure on tubing was 1,250 psi. Gas-oil ratio 500. Operators are running a potential flow gage on the discovery.

Sohio Petroleum Co. opened a new gas-condensate pool in southern Cameron Parish. The discovery well is the 1 S. W. Sweeney, located in Section 22-15s-6w, approximately 5 miles southeast of Lower Mud Lake and 8 miles south of Little Chenier gas field. Through 10/64-in. choke, the well flowed unestimated amount of gas with a spray of condensate, through perforations at 8,250-8,275 ft. Flowing pressure on tubing was 2,600 psi. Total depth is 13,067 ft., with 7-in. casing cemented at 11,241 ft. Operators shut in the well awaiting potential gage.

Sohio 1-B Harry B. Nelson, prospective discovery in eastern portion of Iberville Parish, is testing through perforations at 10,305-10,315 ft. Total depth is 11,023 ft. and 7-in. casing is cemented at 11,021 ft. Test is in Section 14-9s-1e, 8 miles west-northwest of St. Gabriel production in the Manchac area. Details have not been released.

Oil saturation from 2,152-85 ft. has been reported at Humble Oil & Refining Co. 1 Pelican Island State Lease Account 1, Block 30. This wildcat is located in the Pelican Island area of Plaquemines Parish, in the Gulf of Mexico, 8 miles offshore and 12 miles south of the Bastian Bay field. Total depth is 2,586 ft., and 9⅝-in. casing is cemented at 2,572 ft. Operators are coring ahead.

Offshore of Vermilion Parish, 22 miles south of Fresh Water Bayou production and 19 miles from nearest point of shore, Superior Oil Co. A-2 Gulf of Mexico-State, cemented a string of 8⅝-in. casing at 10,000 ft. This is a confirmation test in the Block 71 Vermilion area, and is being drilled from the same platform as the A-1 Gulf of Mexico-State discovery, which flows gas and condensate. Operators are now waiting on cement at total depth of 10,000 ft.

SOUTH LOUISIANA SUCCESSFUL WILDCATS

Cameron Parish: New gas-condensate sand, Pecan Lake—The Superior Oil Co. B-5 Miami Corp., 30-14s-3w, TD 11,804 ft., top sand 10,488 ft., perf. 10,488-505 ft., IP: 57 bbl. condensate per day and 3,470,000 cu. ft. gas per day through a ¼-in. choke, GOR 61,135, TP 3,990 psi., gravity 47.6°.

St. Martin Parish: New oil sand, Plumb Bob—The Texas Co. 21 St. Martin Land Co., 17-8s-7e, TD 11,191 ft., top sand 9,964 ft., perf. 9,964-78 ft., IP: 390 bbl. oil per day through 10/64-in. choke, GOR 682, TP 1,900 psi., gravity 33°.

SOUTH LOUISIANA WILDCAT FAILURES

Lafourche Parish: Tide Water Assoc. Oil Co. 1 Lafourche Realty Co., 12-20s-22e, 3½ mi. SE of Golden Meadow and 3 mi. W of Grandison Prospect, dry, TD 13,471 ft.

Vernon Parish: Placid Oil Co. 1 J. B. Morris et al, 13-2s-8w, 2 mi. NE of Chasmoore, dry, TD 8,523 ft. Top Cook Mountain 6,439 ft., Sparta 6,741 ft., Wilcax 7,739 ft.

MISSISSIPPI

Field Developments Pace Week's Activities

JACKSON.—The California Co. 6 Alice M. Ratcliff, Lease 1 Section 46-7n-1w, Cranfield field, Adams County, was drilled to a total depth of 5,834 ft., and was completed through perforations at 4,336-40 ft., flowing 93 bbl. of 34.5°-gravity oil through a 10/64-in. choke, tubing pressure 260 psi., gas-oil ratio 194.

In Yellow Creek field, Wayne County, Humble Oil & Refining Co. 3 L. E. Howze et al, Section 8-9n-7w, pumped 155 bbl. of oil in 24 hours, plus 12 per cent salt water. Completion is through perforations at 4,940-64 ft., and total depth is 5,027 ft. Top of City Bank sand 4,936-60 ft., Stanley 5,007 ft.

The anticipated rapid development south of La Grange field, Adams County, seems to be starting this week with the announcement of three new locations, as follows: Kemp & Elliott 1 Ogden, Lot 114, located approximately 1,120 ft. northwest of the Elliott 1 Ogden, original well; Kemp Drilling Co. 1 Ogden, Lot 123, approximately 900 ft. southeast of the 1 Ogden; Kemp Drilling 2 Ogden, Lot 116, approximately 1,400 ft. southwest of same well. Other development locations reported this week are one each in East Heidelberg field, La Grange field, Oldenburg field, Tinsley field,

Rust Preventive Stops Rust Effectively

EVANSTON, ILL.—The oil industry's ancient enemy, rust, can be licked at low cost with Rust-Oleum. It's highly resistant to dampness, brine, fumes, and general weather conditions. Rust-Oleum gives lasting protection for all rustable metal surfaces—indoors or out.

Rust-Oleum forms a tough, enduring coating that protects roofs, tanks, machinery, pipes, structural steel, metal buildings, and other rustable metal from the ravages of rust. Rust-Oleum outlasts ordinary protective materials two to ten times, depending on conditions under which it is used.

Maintenance men hail Rust-Oleum's cost-cutting advantages. It can be applied to new metal or on rusted metal after quick, easy preparation, and gives extra coverage per gallon.

RUST-OLEUM
THE WONDER PRODUCT
RUST PREVENTIVE
Stops and Prevents Rust
AVAILABLE IN ALUMINUM AND COLORS
586 RED (LO)

GET THE FACTS— MAIL THIS COUPON TODAY!

SEE OUR CATALOG IN SWEET'S

RUST-OLEUM CORPORATION
2469 Oakton Street, Evanston, Illinois
Please send free copy of Rust-Oleum Catalog with color selections and recommended uses.
Name.....Title.....
Firm.....
Address.....
Town.....State.....

PENBERTHY
SUMP PUMPS

Used wherever seepage water accumulates, the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Drainer (water or steam operated) have demonstrated their superiority in this service. Simple and rugged design—copper and bronze construction throughout.

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

LOOK

FOR THIS CAN ON YOUR SUPPLY STORE SHELF

Use it on every threaded connection and you'll never be troubled with leaking connections. Over a million pounds used by the Indusery in nine years.

Manufactured in Houston, Texas, by
RECTOR WELL EQUIPMENT CO., Inc.
Gen'l. Offices: Fort Worth, Texas

RECTORSEAL
THE POSITIVE LEAK PREVENTER

and Yellow Creek field. Four wildcat starts were reported, two in Marion County and one each in George and Madison counties. Three wildcat failures were completed, one each in Adams, Lincoln and Marion counties.

MISSISSIPPI WILDCAT FAILURES

Adams County: Walter E. Sistrunk 1 Duncan Minor Heirs, 24-6n-3w, dry, TD 7,706 ft.

Lincoln County: Vaughey-Big Chief-Oliver 1 Rachel Hux Burkett Unit, 14-5n-7e, dry, TD 10,804 ft. Tuscaloosa 9,754 ft., Marine Tuscaloosa 10,347 ft., base Marine Tuscaloosa 10,628 ft.

Marion County: Union Producing Co. 1 P. H. Pittman, 1-1n-18w, dry, TD 9,542 ft., lower Tuscaloosa 8,931 ft., Massive 9,272 ft., lower Cretaceous.

FLORIDA WILDCAT FAILURE

Collier County: Humble Oil & Refg. Co. 1-C Gulf Coast Realty Co., C NE SW 21-47s-28e, dry, TD 12,120 ft.

SOUTHWEST TEXAS

Sun Sets Casing At Starr County Prospect

CORPUS CHRISTI.—Sun Oil Co. 1 Austin Estate, wildcat test 3 miles north of Coastal field, in Porcion 38, southeastern Starr County, and 5 miles southwest of Sullivan City, is running 5½-in. casing for completion attempt, after making three drill-stem tests which gave indications of production. Total depth is 5,800 ft.

In Aransas County, Atlantic Refining Co. 1 Gwynn, wildcat 3 miles northwest of Rockport and 3 miles southwest of Fulton Beach field, recovered 60 ft. of oil and 270 ft. of rathole mud on drill-stem test through perforations at 7,748-66 ft. Total depth is 10,000 ft., with hole plugged back inside the 7-in. casing to depth of 8,500 ft.

Humble Oil & Refining Co. 1 Frank Doering, in southwestern Frio County, recovered small quantities of condensate and an estimated average of 2,500,000 cu. ft. of gas per day through ¼-in. chokes on tests at 4,072-79 ft., 4,090-4,100 ft., and 4,100-10 ft.; each developed an average of 100 psi. working pressure on 20-minute tests. This well is in Block 4, D. D. Harrigan's Leona Valley Farms Subdivision, Oscar Crawford Survey 10, Abstract 1318. Operators are drilling ahead below 5,522 ft. in chalk.

Ralph E. Fair and Jack Woodward 1 Luptak, wildcat deep test in the Wilcox zone at North Government Wells field, Duval County, recovered 60 ft. of gas and water-cut mud on a 30-minute drill-stem test at 7,689-7,728 ft., with bottom-hole pressure flowing 900-1,050 psi., and bottom-hole pressure shut-in 3,400 psi. Operators now are drilling ahead below 7,740 ft.

Humble Oil & Refining Co. B-6 Kenedy, 3½ miles northeast of Sarita, in Kenedy County, recovered 550 ft. of oil on drill-stem test at 6,917-26 ft., and now is drilling ahead below 6,952 ft. in shale. Previous tests at 6,898-6,906 ft. and 6,908-16 ft. recovered condensate.

SOUTHWEST TEXAS (DISTRICTS 1 & 4) WILDCAT FAILURES

Bexar County: Rollin V. Hill, Jr., 1 Walter R. Callaway, J. M. Arochas Sur., 16 mi. SE of San Antonio, dry, TD 1,986 ft.

Frio County: Kirkwood & Morgan, Inc., 1 Roberts & Speer, Sec. 6, R. M. Harkness Sur., A-886, 10 mi. W of Dilley, dry, TD 7,451 ft.

Guadalupe County: R. L. Turner and James H. Eddy 1 LeRoy Dolle, G. W. Williams Sur. 46, 8 mi. E of Seguin, dry, TD 200 ft.

Jim Hogg County: F. P. Schwab et al 2 John H. Allen, GC&SF RR Sur. 280, A-338, 22 mi. SW of Hebbronville and 2½ mi. SW of San Pablo field, dry, TD 3,064 ft.

Sullivan & Garnett 1 E. L. Armstrong, Pedro Gutierrez Sur. 296, A-360, 14 mi. SW of Hebbronville, dry, 3,256 ft.

Taggart-Weaver & Sharp 1 E. L. Armstrong et al, Sur. 96, Abst. 2, ⅔ mi. SW of Armstrong field, 11 mi. SW of Hebbronville, dry, TD 3,600 ft.

Jim Wells County: Vice, Clower & Sewell 1 Almond, T&NO Sur. 15, 2 mi. SW of Alfred and ½ mi. S of Brownlee field, dry, TD 3,232 ft.

La Salle County: Newman Bros., Alaska Steamship Co. and Hancock Oil Co. 1 Maria G. Martin, BS&F Sur. 62, 5 mi. E of Encinal, dry, TD 5,604 ft.

Try a string of Dragon Cups on your "tough" wells. Let your pumper judge their quality.

•

GET THEM AT YOUR SUPPLY STORE

DRAGON MFG. CO.
Marietta, Ohio

Riddle Buys & Sells PIPE

FOR SALE
Used Lapweld Range 1 Casing and Tubing
Delivered in Carload Lots Only, Texas and Oklahoma

2" Tubing, $0.48 per ft.
5½" Tubing, $2.30 per ft.
7" Tubing, $2.35 per ft.
8⅝" Tubing, $3.65 per ft.

WRITE, WIRE OR PHONE
RIDDLE OIL CO.
59 EAST VAN BUREN ST.
CHICAGO, ILL.
OR
SEGUIN, TEXAS

McMullen County: Harold K. Boysen and Eugene N. Garner 1 Nueces Land & Live Stock Co., S. M. Williams Sur. 229, 19 mi. SE of Fowlerton, dry, TD 831 ft.

Nueces County: Pan American Prod. Co. 1 C. J. Keliehor, Sec. 14, Benton Pasture Subd., 2 mi. SW of Agua Dulce and 1 mi. W-NW of Sommer field, dry, TD 6,346 ft.

Webb County: O. W. Killam 3 Puig, Albercas Grant, 7 mi. SW from Mirando City, dry, TD 3,511 ft.

KANSAS

Stafford County Wildcat Has Show of Oil

NEAR the western edge of Stafford County and about 6 miles northwest of St. Johns, Huber & Harber 1 Mann, NW NW NW 21-23n-14w, has a show of oil in the Lansing-Kansas City and operator has run casing for further tests. A 45-minute drill-stem test at 3,768-76 ft. recovered 135 ft. of oil-cut mud. The well was drilled to a total depth of 4,093 ft. in the Arbuckle.

In the area in Rooks County near West Barry and Webster pools, Petroleum, Inc., has a good oil show in a well that is about ½ mile from production. The well, 1 Eaton, SW SW NW 34-8s-19w, had a recovery of 280 ft. of oil and 30 ft. of oil-cut mud in a 1-hour drill-stem test of the Lansing at 3,179-87 ft.

Shallow Water Refining Co. has plugged back to the Marmaton for a good well at 3 Eva Nunn, SE SW NE 27-21s-34w, in the Nunn pool, Finney County. The well, completed last January in the Mississippian, has a pumping and flowing potential of 1,114 bbl. from the Marmaton to make it the largest Marmaton well in the field.

The Palco pool in southwestern Rooks County has a good ½-mile east extension at Heathman & Honaker 1 Glick, NW NW NE 4-10s-20w. The well had the Arbuckle at 3,840 ft. and was drilled to 3,843 ft. Casing was set on top of the Arbuckle and the well swabbed 16 bbl. of oil per hour. The same operators gave the pool a good southwest extension about 4 weeks ago.

In the area about 3½ miles north of North Skinner pool in Barber County, Great Lakes Carbon Corp. has completed 1 Werner, SW SE SE 21-30s-14w, as a gas well with shut-in potential of 4,500,000 cu. ft. from the Simpson at 4,582-94 ft.

KANSAS SUCCESSFUL WILDCATS

Barber County: Great Lakes Carbon Co. 1 Werner, SW SE SE 21-30s-14w, gaged 4,500,000 cu. ft. of gas from Simpson sand at 4,582-94 ft.; Douglas 3,879 ft., Lansing 3,995 ft., basal Kansas City 4,322 ft., conglomerate 4,484 ft., Viola 4,506 ft., Simpson dolomite 4,575 ft., TD 4,608 ft.

Barton County: Cardinal Oil, Inc., 1 Shartz, NW NW SW 36-20s-13w, 137 bbl. of oil per day from Lansing at 3,257-63 ft.; Arbuckle 3,500 ft. with show of oil, TD 3,545 ft.

Rooks County: Nadel & Gussman 1 Baldwin, NW NW NW 30-9s-20w, 1,226 bbl. of oil per day from Arbuckle at 3,869-ft., ft.; Lansing 3,868 ft., TD 3,872 ft.

Stafford County: Delta and Bennett & Roberts Drilling 1 Kelly, NW NW SE 35-23s-12w, 84 bbl. of oil per day from Arbuckle at 3,870-75 ft.; Kansas City 3,404 ft., Viola 3,717 ft., Heebner 3,241 ft., Toronto 3,254 ft., Viola 3,717 ft., Simpson 3,820 ft., TD 3,875 ft.

KANSAS WILDCAT FAILURES

Butler County: Derby-Saco and Peel 1 Ramp, NW SW SE 29-28s-7e, dry, TD 2,853 ft., Lansing 1,783 ft., Kansas City 2,108 ft., Mississippian 2,826 ft.

Cowley County: Maurer et al 1 Bossi, SW NW SW 9-35s-4e, dry, TD 3,344 ft., Lansing 2,028 ft., Kansas City 2,528 ft., Layton 2,563 ft., Marmaton 2,788 ft., Cherokee 3,131 ft., Stalnaker 2,880 ft.

Ellis County: Aylward & Elreco 1 Bemis "B," NW NW NW 16-12s-17w, dry, TD 3,743 ft., anhydrite 1,395 ft., Topeka 3,158 ft., Heebner 3,395 ft., Lansing 3,423 ft., conglomerate 3,697 ft.

Stag Drilling Co. 1 Ogden, NE SW SE 34-17s-9w, dry, TD 3,201 ft., anhydrite 845 ft., Lansing 2,856 ft., conglomerate 3,170 ft., Simpson 3,173 ft., Arbuckle 3,192 ft.

Gove County: Darby & Bothwell et al 1 McDowell, NW NW NE 36-11s-30w, dry, TD 4,897 ft., anhydrite 2,393 ft., Topeka 3,710 ft., Heebner 3,941 ft., Lansing 3,978 ft., Mississippian 4,555 ft., Viola 4,835 ft., Arbuckle 4,865 ft.

Graham County: M. B. Armer 1 McShann, NE NE SW 6-9s-21w, dry, TD 3,842 ft., Heebner 3,410 ft., Lansing 3,437 ft., Arbuckle 3,797 ft.

Jewell County: Halbert & Higgins 1 Rank, C NW SW 12-5s-6w, dry, TD 3,740 ft., Lansing 2,300 ft., Marmaton 2,700 ft., Mississippian 2,949 ft., Hunton 3,133 ft., Maquoketa 3,363 ft., Viola 3,417 ft., Simpson 3,651 ft., Arbuckle 3,701 ft.

McPherson County: Crowe Drilling Co. 1 Ade, NE NE SE 6-17s-1w, dry, TD 2,725 ft., Mississippian 2,714 ft.

Westgate-Greenland and Mallard Drilling 1 Tector, SE SE SW 13-18s-2w, dry, TD 2,978 ft., Mississippian 2,937 ft.

Wood River Oil & Refining Co. 1 Neufelt, SW SE SW 6-21s-5w, dry, TD 3,360 ft., Mississippian 3,345 ft.

Rooks County: Westgate-Greenland Oil Co. 1 Behrens, SE SE SE 32-6s-17w, dry, TD 3,347 ft., anhydrite 1,238 ft., Heebner 2,937 ft., Lansing 2,977 ft., Arbuckle 3,297 ft.

Sam Peck et al 1 Cognac, NE NE SE 32-7s-20w, dry, TD 3,536 ft., anhydrite 1,545 ft., Lansing 3,203 ft., Arbuckle 3,476 ft.

W. L. Hartman 1 Williams, NE NE NE 1-10s-19w, dry, TD 3,828 ft., anhydrite 1,600 ft., Heebner 3,389 ft., Lansing 3,424

DEPENDABLE,
LOW-COST
POWER!

General Motors
Twin 6-71
DIESEL
260

CONTINUOUS HORSEPOWER
(MAXIMUM 296 HP RESERVE POWER)

Drilling in the oil fields is a 24-hour-a-day operation; and, an oil man's power must be dependable . . . It has to be compact and portable and require a minimum of maintenance. GM Diesels meet these requirements and more . . . They provide plenty of rugged power in a relatively small space and with low weight (only 21 pounds per horsepower). They're quick to start, they give smooth operation, and they're economical. Small wonder that more and more drillers are turning to General Motors Diesels!

There is a GM Diesel for your every need . . . ranging in size from 30 to 700 horsepower. Most models in stock in our New Orleans plant. Write for brochure.

'Round the Clock Parts and Service

George ENGINE CO., Inc.

1111 Jefferson Highway — New Orleans, La.
Lake Charles Branch — 512 Railroad Ave.

ft., basal Kansas City 3,660 ft., conglomerate 3,685 ft., Mississippian 3,718 ft., Arbuckle 3,815 ft.

Russell County: Rapid Drilling Co. 1 Foster, NE SW NE 7-13s-15w, dry, TD 3,342 ft., Kansas City 3,047 ft., Arbuckle 3,321 ft.

Stafford County: Tom Palmer 1 Clowers, NW NW NE 2-25s-13w, dry, TD 4,180 ft., Lansing 3,584 ft., Viola 3,961 ft., Simpson 4,089 ft., Arbuckle 4,140 ft.

ROCKY MOUNTAIN

Third Adon Well Proves Disappointing

DENVER.—The most active area in the Rocky Mountains during the past year has been the large Powder River Basin, covering the northeastern part of Wyoming. A year ago The Texas Co. drilled a Minnelusa formation (Pennsylvanian) discovery well on a seismic high in the central part of the basin at Adon Unit, Campbell County. The well produced 147 bbl. of oil daily from a 10-ft. saturated section between 8,997-9,007 ft. This summer, Texas drilled a west offset to the well, and failed to find production in the Minnelusa. A third well, north of the discovery, is now drilling in the Minnelusa and is also an apparent failure. The well, 3 Unit, SE SE SE 35-33n-72w, is now below 8,849 ft. with top of the Minnelusa at approximately 8,829 ft. The sand is hard and tight, with very little porosity, and drill-stem tests have failed to show oil recovery.

Following the discovery at Adon, development drilling in the Mush Creek area, 60 miles southeast, resulted in a wildcat leasing and drilling program along the entire eastern side of the Powder River Basin. Wildcat programs in this shore-line area, based on trap possibilities, have been generally disappointing. Drilling east of Mush Creek at Skull Creek has developed production in that field, but wildcats south and west of Mush Creek have not found commercial oil production.

Recently Clark Drilling Co. of Billings found oil in the Newcastle (Muddy) sand at Fiddler Creek 15 miles northwest of Mush Creek, and other wells are now being drilled in this area. Shows were encountered at Lodgepole, 10 miles west of Mush Creek, but no commercial completions have been established in the area. As a result of the Adon discovery last year extensive lease blocks have been assembled throughout the basin, primarily on seismic highs or for seismic exploration. The disappointing results of further drilling at Adon may retard wildcat drilling on other seismic blocks in the central Powder River Basin area.

Pacific Western Oil Corp. has found oil in the Tensleep on an interesting extension south of the Pilot Butte field, Fremont County, Wyoming. The well is the 1 Stock, NE NE SE 28-3n-1w (WRM) and Tensleep was topped at 6,063 ft. On test, with total depth at 6,095 ft., the well made 800 ft. of 27.2°-gravity black oil in 50 minutes. This well will extend the Tensleep productive area of the Pilot Butte field more than 1 mile south. Faulting on the south end of the field is believed responsible for the recovery of Tensleep oil in this location. One-half mile northeast of the Pacific Western well, the Superior Oil Co. has abandoned its 10 Dora Enos, SW NW NW 27-3n-1w (WRM), at 7,388 ft., total depth, after testing sulfur water in the Madison. The Tensleep, found structurally higher than in the Pacific Western extension, also made water, and a double section of Tensleep was drilled in the well after faulting was encountered.

Exploratory drilling in the Pilot Butte-Steamboat Butte area has had excellent results in the past year. Brinkerhoff Drilling Co. and Sohio Oil Co. have developed production in the Tensleep between the two fields and have four producers in this area. Brinkerhoff also recently made an extension on the east side of the Pilot Butte field and is now drilling a second well in this area.

Continental Oil Co. has made location for a third well in the Sussex area, Johnson County, Wyoming, north of the Salt Creek field, with the well in NE NE SW 17-42n-78w, one location west of the discovery well. Continental's second well, an east offset to the discovery, has been suspended at 8,419 ft., total depth, in the Sundance after failing to find production in the Lakota. The discovery well, completed early this year, flowed 250 bbl. of oil daily through choke from the Lakota. It is believed that faulting was responsible for the failure of the second well on this structure.

In the Vernal area of Utah, where Carter Oil Co. has conducted a drilling program for the past year, its 1 Nelson, C SE SW 33-5s-21e, Uinta County, is now below 7,255 ft. Some saturation has been logged in zones below the top of the Wasatch at 7,070 ft., but the operator has recovered mostly water on drill-stem test. On test between 7,214-24 ft. the well made 600 ft. of oil-cut water, 6,010 ft. of water and 40 ft. of drilling mud in 5½ hours. Carter's play through this area has been based on possibility of stratigraphic trap in sands against the Uintah uplift.

COLORADO WILDCAT FAILURE

Kannah Creen, Mesa County: Dinger 1 fee, SW SW SW 35-2s-2e, dry, TD 2,941 ft., Dakota 925 ft., Morrison 1,047 ft.

WYOMING SUCCESSFUL WILDCATS

East Allen Lake, Carbon County: Wasatch Oil Co. 1 Hintze-Government, C NE SE 18-22n-78w, TD 3,964 ft., pumped 36 bbl. oil per day, OWDD OTD 2,180 ft., Sundance 1,900 ft., Tensleep 3,915 ft., elev. 6,575 ft., GR.

THOMAS Flexible COUPLINGS
ALL METAL
SPECIFIED WHEREVER 100% DEPENDABILITY IS DEMANDED

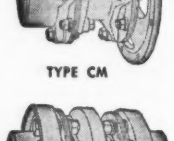
Refiners specify Thomas "Flexible" Couplings for PUMPS, COMPRESSORS, COAL PULVERIZERS, COOLING TOWERS and GENERATOR SETS.

TYPE DBZ-C

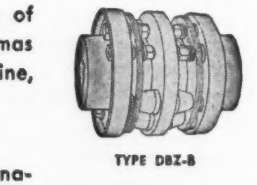
Pipe Line Men know that Thomas "Flexible" Couplings on their Low or High Speed Pumps give 100% dependable service.

TYPE CM

Drilling Engineers get the most out of their equipment with Thomas "Flexible" Couplings on Engine, Gear and Mud Pump Drives.


TYPE DBZ-B

In the Laboratory Thomas "Flexible" Dynamometer Couplings assure the greatest accuracy.


TYPE DBZ

Thomas Flexible All-Metal Couplings Have No Wearing Parts. BACKLASH, FRICTION and CROSS-PULL ARE ELIMINATED.

NO LUBRICATION IS REQUIRED!

Write for the new Engineering Catalog

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

Fiddler Creek, Weston County: Clark Drlg. Co. 1 Witzel, NW NE SW 19-46n-64w, TD 4,552 ft., flowed 238 bbl. oil per day through ½-in. choke, Newcastle 4,502 ft.

WYOMING WILDCAT FAILURES

Longs Creek, Fremont County: British-American Oil Prod. Co. 1 Gov't., C NW NE 5-3' n-94w, TD 6,306 ft., PB 5,702 ft., dry, swabbed 20 bbl. of oil and 10 bbl. of water from Tensleep, Sundance 3,000 ft., Dinwoody 5,146 ft., Phosphoria 5,198 ft., Tensleep 5,648 ft., Amsden 6,150 ft., Darwin 6,220 ft., Madison 6,264 ft.

Casper area, Natrona County: M. E. Morton 1 Pratt, NW NW NE 13-33n-79w, dry, TD 4,360 ft., Shannon 1,505 ft., Frontier 3,984 ft.

MONTANA SUCCESSFUL WILDCAT

Melstone, Musselshell County: Amerada and General Pet. Co. 1 Hougen, C SE SE 23-10n-29e, TD 4,228 ft., flowed 655 bbl. of oil per day through ¾-in. choke, Ellis 3,460 ft., Amsden 3,848 ft., Kibbey 4,165 ft., elev. 3,051 DF.

MONTANA WILDCAT FAILURE

Wolf Creek, Carter County: Hunt Oil Co. 1 Gov't., C NE NE 20-8s-57e, dry, TD 1,640 ft., Muddy 1,290 ft.

MICHIGAN

Active Week Reported for State

SAGINAW.—While preparing 18 new locations, operators in Michigan oil and gas fields chalked up 26 completions in the past week, getting 14 oil producers, 1 gas well and 11 dry holes. Two of the producers were wildcats, one in Allegan County, the other in Osceola County. Of the dry holes, six were wildcats. Initial daily potential was 2,100 bbl., best of the producers being a 500-bbl. well in Montcalm County, a 480-bbl. completion in Midland County and a 350-bbl. well in Crawford's Beaver Creek field.

Van Buren County led in new locations with five. There were two each in Oceana, Allegan and Gratiot counties, and one each in Clare, Barry, Arenac, Bay, Mason, Isabella and Crawford counties.

MICHIGAN SUCCESSFUL WILDCATS

Allegan County, Allegan Township: Chester, Anderson 1 Paul Konecke, NW SE SE 27-2n-13w, 9 bbl. with water, Traverse lime, TD 1,361 ft.

Osceola County, Lincoln Township: Jetter & DeKrafft 1 William Bruske, SW NW SE 26-18n-10w, 40 bbl. with water. acidized, TD 3,132 ft.

MICHIGAN WILDCAT FAILURES

Cass County, Newburg Township: Stuart L. Godfrey 1 Edna E. Wehinger, NW SW SW 15-6s-13w, dry in Traverse lime, TD 1,190 ft.

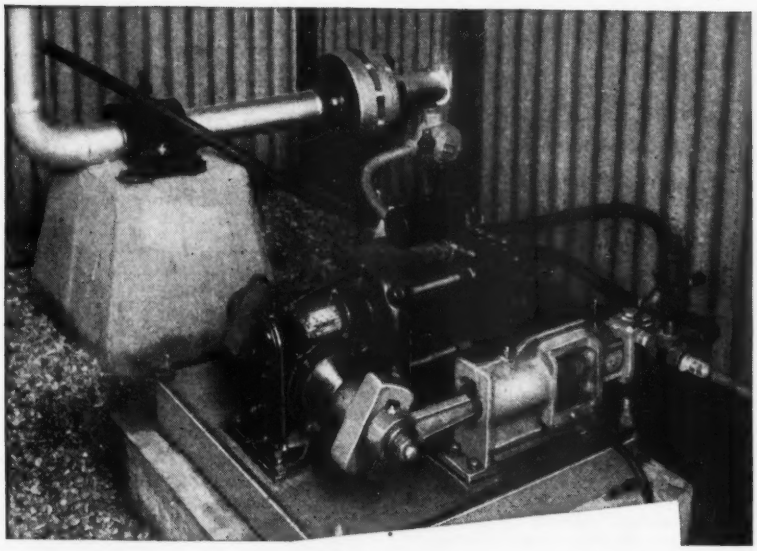
Mecosta County, Big Rapids Township: Scott Drilling, Inc., 1 Tello Bower, NW SE SE 18-15n-10w, dry, TD 1,297 ft.

Deerfield Township: Chapman Oil Co. 1 M. D. Chipman, NE SW SW 18-13n-9w, dry, TD 1,231 ft.

Shiawassee County, Owosso Township: T. F. Caldwell 1 Glen Cudney, SE SW SW 3-7n-2e, dry in Dundee, TD 2,755 ft.

Van Buren County, Geneva Township: Rush & Rathburn 1 Laren Popp, NW SW NE 34-1s-16w, dry in Traverse lime, TD 1,095 ft.

Wexford County, Cedar Creek Township: Charles W. Teater 1 Arlo D. Beaver, NE SW NE 16-23n-9w, dry in Dundee, TD 3,678 ft.



MILTON Roy PUMPS

At BARNSDALL OIL CO., Benton, La., Pumping Chemicals into Flowing Well

There are many applications for Milton Roy Chemical Pumps, in production as well as in refining. Pumping chemicals into flowing wells, for example, to minimize corrosion. Also for chemically treating boiler water to prevent pitting, embrittlement and scaling.

These pumps are positive displacement, positive metering units for controlled volume pumping. The length of the plunger stroke is quickly and easily adjusted to regulate the volume of liquid pumped, to as little as one pint per hour.

Milton Roy Pumps are high pressure pumps, up to 20 thousand psi, for high pressure catalysis, hydrostatic testing and similar applications.

Liquid ends are supplied in any metal or alloy that can be cast and machined, also in certain plastics materials, to meet practically all corrosion resistance requirements.

Investigate the pump that is tailor-made for each specific purpose—to handle materials in exactly controlled volume. Ask for Catalog No. 146.

MILTON Roy COMPANY

1326 E. MERMAID LANE, CHESTNUT HILL, PHILA. 18, PA.

105 Pages of ideas on how to get more oil at less cost

Get this "Pack of Facts" to your Key Men Now

Up-to-date knowledge of how electricity is increasing production, cutting costs in the oil fields, is a must for your key personnel. Get the latest facts to them *now!*

IT'S EASY—General Electric has prepared all the facts in an easy-to-understand, absorbing, *visual* manner that gets ideas across fast.

Here's what the oil field electrification program offers:

1. A 105-page fact-packed manual, "Oil-Field Electrification," competently covering such subjects as power distribution systems, pipeline pumping systems, and the selection of equipment for drilling and field pumping.

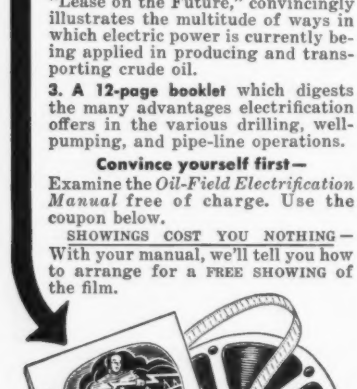
2. A full-color, sound motion picture, "Lease on the Future," convincingly illustrates the multitude of ways in which electric power is currently being applied in producing and transporting crude oil.

3. A 12-page booklet which digests the many advantages electrification offers in the various drilling, well-pumping, and pipe-line operations.

Convince yourself first—

Examine the *Oil-Field Electrification Manual* free of charge. Use the coupon below.

SHOWINGS COST YOU NOTHING—With your manual, we'll tell you how to arrange for a FREE SHOWING of the film.



FREE
TO BUSINESS MANAGEMENT

Attach to your business letterhead

General Electric Co.
Section B684-B
Schenectady 5, N. Y.

Please send me a sample copy of the G-E *Oil-Field Electrification Manual* (GES-3396) without cost, with details on how I can arrange a FREE SHOWING of the film. (Extra copies at regular manual price—$1.00.)

Name_____ Title_____
Company_____
Street_____
City_____

GENERAL ELECTRIC

OKLAHOMA

Beckham County Wildcat Gets Gas and Distillate

UNION PRODUCING CO. has gas and distillate in a wildcat well about 1¾ miles southeast of Elk City pool in Beckham County. The well, 1 G. G. Music, C N½ SE NW 25-10n-21w, found pay about 400 ft. lower than the producing zone in the discovery well at Elk City. A 7-minute drill-stem test at the Union Producing well, made at 9,637-66 ft. in granite wash, had gas in 1½ minutes and flowed at an estimated rate of 15,000,000 cu. ft. through ½-in. and ⅝-in. chokes. Gas was accompanied by spray of 62°-gravity distillate. Recovery was 151 ft. of distillate and no water. Flowing pressure was 2,500 lb. and shut-in pressure was 4,280 lb.

The California Co. has a good discovery prospect at 1 Graham, NE NE SW 36-4n-3w, Garvin County, where operator is running the third drill-stem test in the Bromide. The first test, made at 7,370-95 ft., made an estimated 3,000,000 cu. ft. of gas and recovered 200 ft. of 42°-gravity oil. The second test at 7,395-7,428 ft. had gas in 6 minutes and flowed some distillate along with gas-cut water. Recovery was 160 ft. of 62°-gravity distillate.

Magnolia Petroleum Co. is testing a new pay zone at the north end of Southwest Antioch pool at 1 Sumpter, NW SW NW 7-3n-2w. Operator perforated opposite the Bois d'Arc section of the Hunton at 6,654-6,700 ft. Well kicked off and flowed 62 bbl. of oil in 5 hours. The pay has been treated with 5,000 gal. of acid and testing continues.

In the area about 2 miles east of South Maysville pool in Garvin County, Magnolia Petroleum Co. has a Bromide discovery well at 1 Mason-Burns, NW SE NW 34-4n-3w. Operator perforated at 6,246-56 ft. and the well flowed 215 bbl. of 40°-gravity oil in 12 hours through ¼-in. choke.

Sohio Petroleum Co. has added Oil Creek production in the area southeast of East Lindsay pool at 1 Moore, C NW NW 17-4n-3w. On a drill-stem test at 10,612-36 ft., the well averaged 18.6 bbl. of 47.8°-gravity oil per hour. Gas was estimated at 1,000,000 cu. ft.

OKLAHOMA SUCCESSFUL WILDCATS

Caddo County: New pay in Cement—Magnolia 4 Pickard, SW SW SW 25-6n-10w, gaged 1,250,000 cu. ft. of gas from Melton at 5,396-5,431 ft., TD 8,830 ft.

Garvin County: Sinclair 1 Neill, C NW NW 15-4n-3w, flowed 715 bbl. of 41.2°-gravity oil per day through ¾-in. tubing choke from Pennsylvanian sands at 6,832-6,906 ft., TD 7,026 ft.

OKLAHOMA WILDCAT FAILURES

Coal County: Delaney 1 fee, SE SE SW 7-2n-8e, dry, TD 5,305 ft., Hunton 5,233 ft.

Cotton County: Ross 1 Imhoff, SW SW NE 2-3s-11w, dry, TD 2,003 ft.

Trigg 1 Dowlen, SE NW SE 3-5s-19w, dry, TD 2,450 ft.

Creek County: Spees 1 Taylor, SW SW NE 5-19n-9e, dry, TD 2,403 ft.

Garvin County: Beard 1 Eastep, NW NW SE 29-1n-2w, dry, TD 2,005 ft.

Hughes County: Sohio 1 Bartlett, SW NW NE 26-5n-9e, dry, TD 4,616 ft., second Cromwell 4,495 ft.

Brosius 1 Cosar, SW SE NW 32-8n-9e, dry, TD 3,700 ft., Booch 2,790 ft., Gilcrease 2,905 ft., Cromwell 3,517 ft., Mississippian Caney 3,685 ft.

Kay County: Keystone 1 Hunschild, SE SE SW 8-28n-1w, dry, TD 3,532 ft.

Logan County: Mercury 1 Jordan, NW NW NW 15-15n-1e, dry, TD 5,564 ft., Mississippi lime 5,040 ft., Woodford 5,055 ft., Hunton 5,112 ft., Sylvan 5,243 ft., Viola 5,342 ft., Wilcox 5,426 ft., second Wilcox 5,542 ft.

Anderson-Carey 1 Tisher, NW NW SE 30-16n-2w, dry, TD 6,068 ft., Avant 4,050 ft., Hogshooter 4,595 ft., Layton 4,630 ft., Checkerboard 4,850 ft., Oswego 5,290 ft., Hunton 5,585 ft., Sylvan 5,700 ft., Viola 5,820 ft., Wilcox 5,958 ft., second Wilcox 6,027 ft.

Marshall County: Morgan 1 Perrier, SW NW NW 11-5s-5e, dry, TD 722 ft.

Murray County: Davis 1 Biggerstaff, SE SW NW 27-1s-3e, dry, TD 3,500 ft., Caney 1,755 ft., Mayes 2,565 ft., Woodford 2,670 ft., Hunton 3,061 ft., Sylvan 3,365 ft.

Noble County: Howell 2 Green, SW SW SW 6-23n-1e, dry, TD 4,785 ft., Oswego 3,967 ft., Skinner 4,282 ft., lower Skinner 4,297 ft., Mississippi chat 4,552 ft.

Derby 1 Landacre, NW SW NE 18-22n-2w, dry, TD 5,454 ft., Hoover lime 2,553 ft., Oread 2,067 ft., Tonkawa sand 3,458 ft., Hogshooter 3,717 ft., Layton 4,048 ft., Checkerboard 4,228 ft., conglomerate 4,245 ft., Oswego 4,572 ft., Mississippi lime 5,010 ft., Woodford 5,260 ft., Viola 5,201 ft., Wilcox 5,392 ft.

Okfuskee County: Fleming 1 James, SW SW SE 8-10n-11e, dry, TD 2,804 ft., second Gilcrease sand 2,700 ft.

Pottawatomie County: Buell 1 Nourie, SW SW NW 5-6n-3e, dry, TD 4,965 ft., Pawhuska 1,840 ft., Belle City 2,890 ft., Hogshooter 3,260 ft., Layton 3,340 ft., Checkerboard 3,560 ft., Oswego 4,140 ft., Senora sand 4,295 ft., Woodford 4,400 ft., Hunton 4,710 ft., Sylvan 4,750 ft., Viola 4,853 ft., dense 4,956 ft.

Elm Oil 1 Davidson, N/2 NW SW 29-7n-3e, dry, TD 5,235 ft., Prue 4,016 ft., Earlsboro 4,280 ft., Woodford 4,428 ft., Bois d'Arc-Hunton 4,520 ft., Sylvan 4,830 ft., Viola 4,913 ft., Simpson 5,110 ft., second Wilcox 5,214 ft.

Seminole County: Fourdee 1 Brown, NW SW NE 34-8n-5e, dry, TD 4,480 ft., Hunton 4,192 ft., Sylvan 4,221 ft., Viola 4,338 ft., Wilcox 4,466 ft.

Ledeen CYLINDERS ARE GOOD CYLINDERS

Shifting clutches in drilling tools to obtain proper speed is hard, tiring work.

Ledeen Heavy Duty Cylinders do the work easily; saving time and effort.

Send for Bulletin 453

Push or pull, tilt or turn, lift or lower, open or close, press or squeeze.

Available from stock

ENGINEERING PRODUCTS CO.
LEDEEN MANUFACTURING DIVISION
1610 SAN PEDRO • LOS ANGELES 15, CAL

CALIFORNIA

Dominguez Field Gets Southeast Extension

LOS ANGELES. — Exploratory work of Union Oil Co. on the southeast side of Dominguez field of Los Angeles County has resulted in an extension of the field in that direction. The 2 Dominguez Estate, 2-4s-13w, has been completed flowing at the rate of 300 bbl. daily from the Seventh Zone. Production died after 8 hours, but the well was restored to production and at latest reports was making oil at the rate of 105 bbl. every 5 hours. Total depth of the well is 7,963 ft., and production is through 158 ft. of perforated liner landed at that depth.

General Petroleum Corp. has opened a new zone to production on the west side of Cat Canyon field in Santa Barbara County. The company's 86-21 Los Flores, 21-9n-33w, has been completed on pump for 240 bbl. daily of 18°-gravity crude cutting approximately 2 per cent. The well was drilled to a total depth of 5,037 ft., and production is from a perforated interval at 4,681-5,027 ft. Since the well was drilled from an elevation of 928 ft., the new zone is approximately 1,000 ft. above other producing horizons in the field.

The Texas Co. has extended its producing area in San Ardo field about ¾ mile to the southeast with the completion of the H-4-13 Orradre Two, 13-23s-10e. This well was completed on pump for 68 bbl. of crude daily from a total depth of 3,034 ft. It sanded up, however, and a new pump is being rigged in order to get the well back on production.

In the same area, Jergins Oil Co. and North American Consolidated Oil Co. have a prospective southern extension of San Ardo field. The combination's 197-11 Orradre, 11-23s-10e, was last reported to be reaming at a depth of 2,185 ft. Reports are, however, that the well is scheduled to be brought in within a few days from an oil sand found at the interval at 2,085-2,185 ft.

Bandini Petroleum Co. created considerable excitement in the Cuyama Valley during the past week by coring streaks of oil sand in its 2 Graham, an exploratory well about 6 miles east of Richfield Oil Corp.'s producers. The 2 Graham, 33-11s-26w, first encountered evidence of oil at 1,060 ft. and was still coring streaks at 1,114 ft. A formation test made at the close of the week resulted in a strong blow of gas and the recovery of drilling fluid and a few slugs of oil. Crews are now reaming and will resume drilling and coring within the next few days. Should the well prove productive, Bandini will have added a new shallow field in the Cuyama Valley, which currently is the "hottest" area in the state.

CALIFORNIA SUCCESSFUL WILDCATS

Kern County, McKittrick area: Signal Oil & Gas Co. 1 Signal-Pike, 10-30s-22e, pumped 15 bbl. daily, gravity 25.0°, water cut 10 per cent, elev. 755 ft., TD 7,505 ft.

Wheeler Ridge area: Richfield Oil Corp. 122-28 Gordon, 28-11n-20w, pumped 56 bbl. in 12 hours, gravity 19.9°, water cut 12 per cent, elev. 1,539 ft., TD 1,375 ft.

CALIFORNIA WILDCAT FAILURES

Fresno County, Turk Anticline area: Richfield Oil Corp. 1 E. M. Buck, 21-17s-17e, dry, elev. 234 ft., Kreyenhagen 8,507 ft., Norton 9,052 ft., Hondo 9,148 ft., Wheatville 9,518 ft., TD 9,750 ft.

Humboldt County, Eureka area: Salmon Creek Oil & Gas Co. 1 fee, 15-3n-1w, dry, elev. 500 ft., TD 5,556 ft.

Kern County, Arvin area: Bolsa Chica Oil Corp. 1 DiGiorgio, 4-31s-29e, dry, elev. 480 ft., TD 5,865 ft.

Blackwells Corner area: British-American Oil Prod. Co. and Western Gulf Oil Co. 11-22 Beer, 22-26s-19e, dry, elev. 666 ft., TD 8,373 ft.

Comanche Point area: Steele Petroleum Co. 1 Grizzle, 14-11n-18w, dry, elev. 1,405 ft., TD 416 ft.

Maricopa area: Honolulu Oil Corp. 78-A Snook & Wells, 1-11n-24w, dry, elev. 793 ft., Monarch 1,447 ft., Pulve 4,478 ft., TD 5,610 ft.

Mount Poso area: Bradford Bishop 2 Glide, 23-27s-28e, dry, elev. 1,207 ft., Vedder 1,405 ft., TD 1,425 ft.

Wheeler Ridge area: The Texas Co. 3 K.C.L., 6-10n-20w, dry, elev. 2,266 ft., Miocene over Tulare at approximately 2,600 ft., TD 4,000 ft.

Monterey County, San Ardo area: Independent Exploration Co. and Oceanic Oil Co. 1 Trescony, 32-21s-9e, dry, elev. 730 ft., TD 3,266 ft.

Los Angeles County, Inglewood area: Standard Oil Co. of Calif. 4-1 L.A.I., 20-2s-14w, dry, elev. 183 ft., TD 10,176 ft.

Sacramento County, Folsom area: Benjamin W. Vinetz 1 Donnie, 9-9n-6e, dry, elev. 159 ft., TD 2,600 ft.

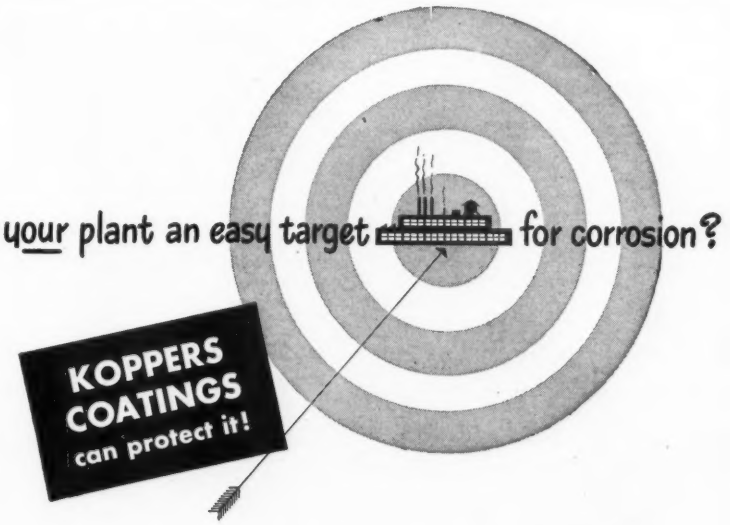
Santa Barbara County, Bradley Canyon area: Union Oil Co. A-1 Union-Fugler, 35-10n-33w, dry, elev. unknown, TD 4,550 ft.

Cuyama Valley area: Ohio Oil Co. 1 H. Kerschenmann, 12-10n-27w, dry, elev unknown, TD 7,096 ft.

Richfield Oil Corp. 34-6 Russell-A, 6-10n-27w, dry, elev. 2,139 ft., TD 3,451 ft.

Richfield Oil Corp. 76-8 Russell-A, 8-10n-27w, dry, elev. 2,249 ft., TD 4,430 ft.

Sonoma County, Petaluma area: Precision Drilling Co. 1 Tunzi, 29-5n-6w, dry, elev. 150 ft., TD 1,850 ft.



Every year, rust and corrosion exact a terrific toll from industry . . . billions of dollars in fact. But you can easily cut your plant's contribution—and it *is* a contribution—by using Koppers Industrial Protective Coatings.

For example, here's how Koppers Bituplastic* protects metal, concrete or masonry: Bituplastic (it's not a paint) coats exposed surfaces with a tough film. This protective film is thick; three coatings of Bituplastic build up a seamless, non-porous sheath nearly 1/16" in thickness—a sheath that not only resists water, but the assaults of sun, salt air, condensation, atmosphere, weather, and acid or alkaline fumes.

Bituplastic is one of a fami'y of Koppers Protective Coatings—all specifically formulated to meet special conditions. Write us about your particular corrosion problems.

KOPPERS

*Trade-Mark Reg. U. S. Pat. Off.

KOPPERS COMPANY, INC., DEPT. 1105T, PITTSBURGH 19, PA.

ILLINOIS

Richland County Wildcat Is Discovery Well

MATTOON.—In the north central part of Richland County and just south of Stringtown, Calvert & Willis and Ashland Oil & Refining Co. have a McClosky discovery well at 1 Henry Schneider, NW NW NW 4-4n-14w. Operator is cleaning out for further test of McClosky at 3,010-14 ft. after swabbing 112 bbl. of oil and 6 bbl. of water in 6 hours. The pay was treated with 2,000 gal. of acid.

In the area about 3 miles southwest of Mount Vernon, Ill., H. E. Howard 1 McLaughlin, NW SE SW 2-3s-2e, Jefferson County, has a show of oil. The recovery from a 1½-hour drill-stem test of the Aux Vases at 2,565-86 ft. was 10 ft. of oil and 90 ft. of oil-cut mud. Operator is drilling ahead at 2,776 ft. after topping the Ste. Genevieve at 2,642 ft.

In White County, Magnolia Petroleum Co. 1 L. E. Taylor, NW NW NE 31-3s-9e, is going on pump to further test the McClosky, 3,457-60 ft., after swabbing at the rate of about 36 bbl. per day.

In Franklin County, Taylor & Schumacher 1 U. S. Coal & Coke Co., SW NW NW 21-6s-4e, has been completed with an initial production of 80 bbl. of oil and 160 bbl. of water from the O'Hara at 3,056-60 ft., the Rosiclare at 3,082-94 ft., and the McClosky at 3,130-34 ft. Total depth is 3,146 ft.

ILLINOIS SUCCESSFUL WILDCATS

Franklin County: Taylor & Schumacher 1 U. S. Coal & Coke Co., SW NW NW 21-6s-4e, IP 80 bbl., lower O'Hara 3,056-60 ft., Rosiclare 3,082-94 ft., and McClosky 3,130-34 ft., TD 3,146 ft.

Gallatin County: W. M. Angle, Ashland Oil & Refining Co. and Calvert & Willis 1 Egli, W½ SW NE 30-7s-10e, IP 50 bbl., Tar Springs 2,717-84 ft., TD 2,184 ft.

ILLINOIS WILDCAT FAILURES

Coles County: Milo Ritchie 1 E. E. Riggins, SE NE NE 27-12n-10e, dry, TD 1,029 ft.

Gallatin County: W. H. Keasler 1 J. W. Bishop, SW SW SW 28-7s-8e, dry, TD 2,080 ft.

C. E. Brehm 1 Gumbel, NE SE SW 30-7s-8e, dry, TD 2,136 ft.

B. M. Heath 1 J. T. Conlon, NW NE SW 30-7s-8e, dry, TD 3,078 ft.

Hamilton County: C. E. Brehm 1 Friend, NE SW SE 13-7s-7e, dry, TD 2,306 ft.

Jasper County: Robinson & Puckett 1 Brown, SW SW SW 19-6n-14w, dry, TD 2,850 ft.

Perry County: P. Doran 1 Boyd Heirs, NE SE NE 11-4s-3w, dry, TD 1,641 ft.

Richland County: Sun Oil Co. 1 Ulrich, NE NW NE 2-3n-10e, dry, TD 3,250 ft.

J. L. Black 1 H. C. Broughan, NE SE SE 35-5n-14w, dry, TD 2,876 ft.

Wayne County: W. O. Schock 1 W. Spence, SW SE NE 26-2n-6e, dry, TD 3,277 ft.

Wabash County: Ashland Oil & Refining Co. 1 C. Dunkel, NW SW SE 31-1n-12w, dry, TD 2,441 ft.

Hollow or Solid . . .

How Do You Want Them?

Do you need cold drawn mechanical tubing or cold finished steel bars? We have both—and many other steel products, all in stock for quick shipment.

True—great demand sometimes depletes the supply of a kind or size here and there. Still, we probably have the largest over-all steel stocks in the country, and our cold finished bar and cold drawn tubing stocks are particularly good. Round bars range in size from 1/16" to 10" with analyses suitable for every application. Ryerson mechanical tubing stocks include sizes from 1/8" to 10½" O.D. in many wall thickness.

You can be confident of high quality steel when you draw on Ryerson stocks. For example, we carefully check cold finished bars for roundness, mechanical tubing for concentricity and both products for straightness, finish and size accuracy.

So whether you want them solid or hollow—whether you need bars or tubing—or other carbon, alloy and stainless steel products, call Ryerson. We are ready and anxious to work with you.

Joseph T. Ryerson & Son, Inc. Plants: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco.

PARTIAL LIST OF PRODUCTS

BARS—carbon & alloy, hot rolled & cold finished
TUBING—Seamless & Welded mechanical & boiler tubes
STRUCTURALS—I beams, H beams, channels, angles, etc.
PLATES—incl. safety floor plate
SHEETS—hot & cold rolled
STAINLESS—Allegheny Metal sheets, plates, bars, etc.
MACHINERY & TOOLS—for metal working

RYERSON STEEL

LA.-ARK.

Sabine Parish Wildcat Tests Back Up Hole

SHREVEPORT. — Arkansas Fuel Oil Co. 1 Jackson & Purswell, Rodessa failure in 29-7n-12w, Sabine Parish, started testing back up the hole from total depth at 6,210 ft. New perforations at 6,052-58 ft., packed off at 6,030 ft., recovered salt water and mud. It recovered additional salt water in plugging back to 5,565 ft., and perforating from 5,545-52 ft. A 15-minute drill-stem test at 5,385-90 ft. recovered 4,600 ft. of slightly gas-cut mud.

Hunt Oil Co. 1 A. O. Goodwin, Smackover gas-distillate discovery or extension well in 21-23n-7w, Claiborne Parish, had casing repaired and was making further flowing tests. Operators ran packer on tubing to 10,115 ft., and gaged 283 bbl. of 52°-gravity distillate a day through 11/64-in. choke, from perforations at 10,160-170 ft. Flowing tubing pressure was 4,100 psi.

Delta Drilling Co. 1 Meadows, Claiborne wildcat in 1-22n-7w, was drilling below 10,531 ft., and believed to be in or near the Smackover. A core from 10,521-31 ft. recovered 4½ ft. of hard limestone having no fluorescence or porosity.

In Caddo Parish, Chicago Corp. 1 Caddo Levee Board, 15-22n-15w, was coring in the lower Glen Rose at 5,000 ft. Phillips Petroleum Co. 1 Ellerbe, 17-15n-12w, was drilling at 6,900 ft.

Hunt Oil Co. 5 Louisiana Delta, 23-4n-5e, Catahoula Parish, was drilling in the Tuscaloosa below 10,468 ft. Cores from 10,414-467 ft. recovered sand and sandy shale, with no shows.

In Ouachita Parish, estimates on the daily flow of The California Co. 2 Maxey were revised downward to around 715,000 cu. ft. of gas a day, plus 23 bbl. of 57°-gravity distillate. Flow tests were being made through ½-in. choke, under tubing pressure of 275 psi.

In Ashley County, Arkansas, Superior Oil Co. of California 1 Bradley, 11-19s-10w, had total depth at 6,173 ft. in the Smackover, then plugged back to the Cotton Valley at 5,940 ft. It swabbed salt water with a scum of oil from perforations at 6,038-43 ft.; then all salt water in 8 hours of swabbing.

Stanolind Oil & Gas Co. 1 Bodcaw, 29-19s-23w, Lafayette County, was drilling in the Buckner at 10,802 ft. Stanolind 1 Union

Saw Mill, 18-19s-24w, was drilling below 10,255 ft.

NORTH LOUISIANA WILDCAT FAILURE

Bossier Parish: Nelson & Edward Morris et al 1 Tom Gardner, 10-22n-14w, dry, TD 1,600 ft., Nacatoch 1,370 ft., elev. 220 ft.

ARKANSAS WILDCAT FAILURES

Benton County: Ozark Production Co. 1 E. W. Curry, 34-18n-33w, dry, TD 2,236 ft.

Chicot County: R. B. Smith 1 C. S. Yarbrough, 6-17s-1w, dry, TD 3,360 ft. in igneous.

Ouachita County: J. K. Wadley 1 Lester Realty Corp., 35-14s-19w, dry, TD 2,955 ft.

OHIO, KENTUCKY

Good Oil Producer Extends North Clayton

COLUMBUS.—The Mid East Oil Co. completed one of the best producers in the North Clayton extension, the 5 R. E. Beard, Section 32, Madison Township, Perry County. The Clinton sand at 3,193-3,226 ft. showed 20 bbl. of oil natural and 205 bbl. in 24 hours after shot. A south offset has been staked. The same operator completed the 2 Wilbur Clapper, Section 33, Salt Creek Township, Muskingum County, as a 45-bbl. well in the Medina. The sand came in at 4,263-69 ft. and was shot with 60 qt.

In the shallow fields, William Cook et al 3 J. W. Kincade, Section 4, Carthage Township, Athens County, topped the Keener at 1,292 ft. and finished at 1,303 ft. with a natural open flow of 963,000 cu. ft. of gas. South and west offsets are planned.

The Parma pool was extended ½ mile to the south with a small well on Fanny Perzy, Section 12, Royalton Township, Cuyahoga County, by J. C. Steiner et al. Red Clinton sand at 3,348-87 ft. made 150,000 cu. ft. of gas natural and 350,000 cu. ft. after shot. In Parma Township, W. C. Best 1 M. H. Miller, Lot 41, found 400,000 cu. ft. of gas in the Oriskany at 1,769-1,805 ft. The well may be acidized before completing.

East Ohio Gas Co. is moving in tools on a wildcat on S. & A. Pomesky in Section 34, Osnaburg Township, Stark County.

EASTERN KENTUCKY

ASHLAND.—In Morgan County, 12-P-65, Sam Allen et al 1 Thomas Richardson, wildcat test on Caney anticline, is drilling ahead at 3,550 ft. with Knox dolomite expected below the 4,000-ft. level. The test is located in the heart of the old Cannel City pool (Corniferous production) and is the first Cambro-Ordivician well for the area.

Roy Davis et al 1 George Reddix in 4-Q-65, Powell County, is drilling at 2,000 ft. with no showings reported. Well is located about ½ mile south of a recently completed dry hole. The first well had sufficient shows to encourage operators to make a second try in the area.

In Powell County, 9-P-67, A. H. Carpenter is drilling at 2,400 ft. on 1 James Hall, a seismograph prospect for the western portion of the county. Location of the test is about 7 miles northwest of the Furnace (St. Peter production) gas field.

EASTERN KENTUCKY WILDCAT FAILURE

Clay County: Pure Oil Co. and Stanolind Oil & Gas Co. 1 Rawlings Consolidated, 5-I-69, dry, TD 3,603 ft., Corniferous 1,182 ft., Knox 3,305 ft., slight show of gas.

WESTERN KENTUCKY

OWENSBORO.—Todd County has a prospective pool opener at Fred A. Noah & Sons 1 Hollingsworth, 6 miles northeast of Guthrie. Operator has set casing at 1,077 ft. for a test of Devonian lime, 1,079-82 ft. Well filled with about 25 ft. of clean oil

Oakite Helps You Save Money on These 7 Cleaning Jobs

- **cleaning lube oil coolers**
- **descaling jacket water coolers**
- **salvage-cleaning parts**
- **cleaning tank car interiors**
- **stripping paint**
- **de-rusting equipment**
- **descaling Diesel engines**

Now's a good time to check over your maintenance cleaning procedures . . . put them on a more economical basis with Oakite cleaning. Widely-used Oakite cleaners and Oakite methods, designed for their particular jobs, are sure to provide quicker, easier cleaning on those seven jobs and others you come across. So whatever the cleaning job in your producing, refining and marketing division, call in your nearby Oakite Technical Service Representative. He'll gladly spot-check the job . . . show you the Oakite cleaners and methods to solve it—at low cost.

Job Data in FREE Digest

Complete procedural data for the use of Oakite materials on 88 cleaning jobs commonly performed in the petroleum industry—yours FREE in the 28-page "Oakite Petroleum Cleaning Digest." Just send a letterhead-request for your gratis copy.

OAKITE PRODUCTS, INC., 44C Thames St., NEW YORK 6, N. Y.

OAKITE MATERIALS METHODS SERVICE

Specialized Industrial Cleaning

Technical Service Representatives in Principal Cities of U. S. & Canada

DURBIN-DURCO, Inc.

PULLING TOOLS • WIRE STRETCHERS • ROPE HOISTS

New! Improved! Reinforced! Guaranteed!

DROP FORGED — MALLEABLE LOAD BINDERS

PATENT PENDING

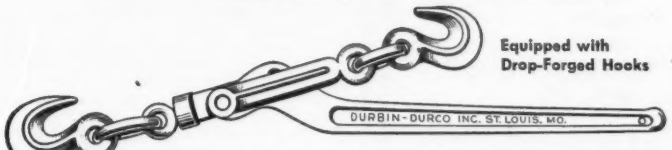
MODEL DF1 for 5/16" to 3/8" chain. Safe pulling test 16,000 lbs. 19" handle. Weight each 10 lbs.

MODEL DF2 for 3/8" to 1/2" chain. Safe pulling test 20,000 lbs. 20" handle. Weight each 12 lbs.

MODEL DF3 for 1/2" to 5/8" chain. Safe pulling test 24,000 pounds. 22" handle Weight each 15 lbs.

MODELS DF1, DF2 and DF3 are rugged, safe Load Binders featuring Never Spread Mouth. An exclusive feature designed and developed by Durbin-Durco engineers.

CERTIFIED MALLEABLE LOAD BINDERS — 5 SIZES



Equipped with Drop-Forged Hooks

Durbin-Durco Load Binders guarantee safe performance at their respective pulling tests. Should a defect develop in any part, that part will be replaced without charge upon its return to us.

		Wt. Each
MIDGET	No. 1—1 Swivel . . . ¼" chain	2¼ lbs.
DELTA	No. 1—2 Swivels . . ⅜" or ½" chain	7 lbs.
DIXIE	No. 1—2 Swivels . . ⅜" or ½" chain	10 lbs.
LONE STAR	1—2 Swivels—⅜", ½" or ⅝" chain.	14 lbs.
LONE STAR	2—2 Swivels . . ⅜", ½" or ⅝" chain.	17 lbs.

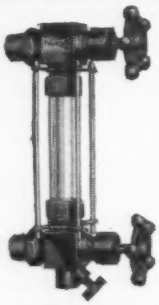
WRITE FOR CATALOG

DURBIN-DURCO., Inc.

Specialists in Pulling Tools • Wire Stretchers • Rope Hoists

6611 OLIVE ST. ROAD ST. LOUIS 5, MO.

PENBERTHY
"ALL IRON"
LIQUID LEVEL GAGES



Body made from a special high strength alloy iron, shanks alloy steel and trim stainless steel. Extra heavy construction throughout, automatic and positive shut-off if glass breaks, heavy duty stuffing boxes. Conform with A.P.I.—A.S.M.E. requirements.

The "All Iron" is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

Bell TUBING SWABS

The New Standard for Efficiency and Economy

- Lift more fluid each trip.
- Long wearing reversible cups save you money.

2-Cup Swabs for shallow work.

4-Cup Flexible Swabs for deep swabbing.

See Pages 2642-43 Composite Catalog
Patent #2,317,433

MECHANICAL
MANUFACTURING CO., INC.
BOX 1001 PHONE 4-3261
FORT WORTH, TEXAS
EXPORT: BROWN & BECKLEY
30 Rockefeller Plaza, New York

when the pay was drilled. The wildcat is in the same general area of Todd County as Ryan and Sharp 1 Kennedy, 5-C-29, where operators found a gas show in the Silurian but not enough to be commercially productive.

The Webster County deep test, Pure Oil Co., Ashland Oil & Refining Co., and I. B. Browning 1 M. L. Walker, NE¼ 22-N-24, is changing back to rotary tools to complete the drilling to the scheduled 7,000 ft. The change is being made at a depth of 3,806 ft.

WESTERN KENTUCKY WILDCAT FAILURE

Daviess County: W. E. Hupp et al 2 R. Keene, NW SE NW 13-Q-27, dry, TD 1,949 ft.

INDIANA

EVANSVILLE.—In the southwestern part of Knox County and northeast of East Mt. Carmel pool, S. D. Jarvis has new Benoist production at 1 Stillwell-Holsen, 13-1s-12w, where operator is installing pump for further test. Well swabbed 4 bbl. per hour after a 40-qt. shot in the pay at 2,075-89 ft.

George & Wrather 1 Ziliak, NE NE SE 18-4s-10w, Gibson County wildcat, is going on pump to test the O'Hara at 2,259-64 ft. Pay was treated with 2,000 gal. of acid and the well swabbed 3 bbl. per hour. The wildcat is about 1½ miles southeast of St. James pool that was opened in June.

The Vigo County wildcat, C. B. Mansfield 1 Sutliff, NW NW NW 14-11n-9w, has been completed with an initial production of 360 bbl. per day from the Devonian. Production is through perforations opposite pay at 1,672-1,702 ft. The well is about 3 miles south of Terre Haute, Ind.

Southern Posey County has a good discovery well at V. R. Gallagher, D. E. Schock, and Aurora Gasoline Co. 1 Spencer-Vogel, NW SW NW 12-8s-14w. The plug was drilled on McClosky pay at 2,854-63 ft. and the well flowed 1,134 bbl. of oil, natural through casing, in the first 24 hours.

INDIANA WILDCAT FAILURES

Gibson County: George & Wrather and Aurora Gasoline Co. 1 Z. C. McGary, NW SW SE 9-3s-11w, dry, TD 2,497 ft.

Posey County: V.-T. Drilling Co. 1 A. E. Cooper, NE NE SW 11-4s-13w, dry, TD 3,002 ft.

APPALACHIAN FIELD

Pennsylvania Wildcats Hightlight Week's Starts

PITTSBURGH.—In Cherry Township, Butler County, Pennsylvania, a rig is being built by Hill Oil & Gas Co. for a wildcat on the Joseph Duffy farm, elevation 1,203 ft. This well is located on Hilliards Quadrangle, 2.65 miles west of Longitude 79 degrees, 55 minutes and 0.68 miles north of Latitude 41 degrees, 5 minutes. In Napier Township, Bedford County, South Penn et al and Snee & Ebery 1 Jesse B. Miller, deep test, elevation 1,666 ft., is spudding at 80 ft.

New locations reported were four: Boggs and Manor townships, Armstrong County; Clarion Township, Clarion County; Amwell Township, Washington County.

In Kingwood district, Preston County, West Virginia, Hope Natural Gas Co. 9209 Frank Barlow, elevation 2,235 ft., is drilling at 7,500 ft. with the Tully lime recorded at 7,265-7,283 ft. In Grant district, Jackson County, this company's 9230 Lee Batten will be shot in the Oriskany sand where gas was struck at 4,867 ft. The well was drilled through the Clinton sand. In Big Creek district, McDowell County, United Fuel Gas Co. 6219 New River & Pocahontas Coal Co., elevation 1,627 ft., had the 7-in. casing set at 6,400 ft.

New locations reported were 42: Ravens-

WITH PATTERSON-BALLAGH PLASTIC TUBING PROTECTORS

Prevent tubing collar wear against casing to get more profit from pumping. These Plastic Protectors are oil-proof and wear-resistant—securely bonded at the factory to standard collars in all sizes. They will make your collars and casing wear longer. Check Composite Catalog for details and end your tubing troubles today.

Specify PROTECTION PROVEN
PATTERSON-BALLAGH
DIVISION OF BYRON JACKSON CO.
PLASTIC TUBING PROTECTOR
Main Office: P. O. Box 2493, Terminal Annex, Los Angeles 54
Offices: HOUSTON • SAN FRANCISCO
NEW YORK • LONDON • BUENOS AIRES

Standco NO-SMOKE
STANDCO BRAKE LINING
Stands the gaff and gets the job done without scoring brake rims. See pages 3608-3613, Composite Catalog.
Standco Brake Lining Co.
HOUSTON

RENT-A-NEW 1949 CAR
50 New Models Added to Our Fleet for U'r Convenience Drive U'r Self
BUSINESS or PLEASURE
Rates as Low as $6.00 Daily
All Road Expenses Furnished
GULF COAST
RENT-A-CAR-TRUCK CO.
L 1152 H 8108
2800 S. Main Houston, Texas

wood district, Jackson County; Cabin Creek, Elk and Poca districts, Kanawha County; Triadelphia district, Logan County; Liberty, Sandhill and Webster districts, Marshall County; Cologne district, Mason County; Harvey district, Mingo County; Browns Creek district, McDowell County; Grant district, Nicholas County; Curry, Pocatalico and Teays Valley districts, Putnam County; Trap Hill district, Raleigh County; Clay and Union districts, Ritchie County; Buckhannon district, Upshur County; Grant, Lincoln and Union districts, Wayne County; Baileysville, Center and Oceana districts, Wyoming County.

CANADIAN FIELDS

Redwater Discovery Swabs into Production

CHATHAM.—Imperial Oil, Ltd.'s Redwater 1, discovery well, was swabbed into production following a 20,000-gal. acid treatment. It produced 35°-gravity clean oil at the rate of 74.8 bbl. per hour, or 1,795 bbl. daily, through 2½-in. tubing. A temporary shut-in has been essential due to lack of further storage tank facilities. The well will commence steady, restricted production soon.

Redwater 2, LSD 3, 29-58-21w4, 5 miles north of No. 1, has missed the Devonian limestone that yielded production at the discovery well. Currently, No. 2 is coring below 3,800 ft., probing for deeper horizons. Two of the three other follow-ups have commenced drilling, while the third will spud in the immediate future.

About 90 miles northeast of Calgary and the same distance southeast of Edmonton, is the site for another wildcat in the Stettler area. Piccadilly-Interleduc-Stettler 1 is to be drilled in LSD 13-14-38-21w4, about 10 miles southwest of the town of Stettler. The new venture will be drilled on some 18,000 acres of Canadian Gulf Oil Co. rights, and that company will share in any production obtained. The Stettler wildcat is situated about midway between two failures that had been drilled 12 miles apart during the past year. Over 500 ft. of Devonian reef porosity equivalent to Leduc's D3 had been found at one of these failures, but it was water loaded. The other found D2 tight and D3 zone of the Devonian non-existent. Piccadilly-Stetler is being drilled midway between, in the hope that a pinchout of D2 porosity will yield oil, and that D3 zone will be found at a high enough level for production.

The California-Standard Co. has staked another well in the southeast corner of Alberta, in an effort to expand its natural ges reserves in that area. The new venture, Foremost-Province 44-11-5-12, in NW LSD 7, 11-5-12w4, is in the Foremost area. The new start will probe for gas in the Bow Island sand horizon, with likely completion depth around 3,000 ft.

In the Hanna area, about 45 miles north and 90 miles east of Calgary, Hanna Petroleums, Ltd., is starting its third exploratory well. Hanna Pete 3 in LSD 14, 5-31-14w4, is a follow-up of last year's Berry Creek Petroleums' "wet gas" strike in the Madison limestone. The Berry Creek well is a discovery from the top of the Madison limestone (Madison topped at 3,675 ft., became coarsely crystalline at 3,780 ft. with slight oil staining). On flow test some months ago, it gave natural gas at a rate of 3,830,000 cu. ft. daily. The distillate content is placed at just ¼ gal. per 1,000 cu. ft. Hanna Pete 3 is about 1 mile west of the "wet gas" well, and about 1 mile southwest of the town of Hanna.

Calmont-Leduc 2, LSD 6, 1-51-26w4, northeast Leduc extension test, is now coring and testing the lower Cretaceous sands below 4,167 ft. Two drill-stem tests have been run. In a test of interval at 4,128-48 ft., there was a daily gas flow rate of 700,000 cu. ft. but no fluid recovery. Test of interval at 4,148-60 ft., gave a gas flow rate of 1,250,000 cu. ft. daily, plus a 1-hour pipe recovery of 90 ft. of oil and 150 ft. of water.

Home Oil Co.'s two latest Leduc wells are expected to be placed on production in the immediate future. Production string of casing has been run at both Home 9 and 19 wells.

Imperial Oil, Ltd., has established initial potential at two additional completions at Leduc during the past week. Imperial 108, LSD 13, 26-50-26w4, D3 zone completion at 5,296 ft., rates an initial potential of 2,148 bbl. daily. Imperial 114, LSD 3, 22-50-26w4, D3 zone completion at 5,368 ft., rates potential of 1,660 bbl. daily.

Houston Group to Sponsor A.A.P.G. Regional Meeting

HOUSTON.—The Houston Geological Society will sponsor one of the three regional meetings of the American Association of Petroleum Geologists December 2-3 in Houston.

George S. Buchanan, vice president of Sohio Petroleum Co., has been named chairman of the general committee for the Houston meeting.

Other members of the general committee for the Houston meeting named by A. F. Childers, Jr., Gulf Oil Corp., society president, are: George Sawtelle, Kirby Petroleum Co.; Morgan J. Davis, Humble Oil & Refining Co.; and B. G. Martin, Gulf. Chairmen of other committees are: technical program, Hillard Carey, Houston Natural Gas Co.; housing, Carleton D. Speed, consultant; finance, E. O. Buck, National Bank of Commerce; entertainment, Don Gahagan, Pan American Petroleum Co.; publicity, Dr. J. Brian Eby; registration, Frank J. Gardner; program preparation, Paul Levenworth, Gulf; and program equipment, Art Gale, Pan American Petroleum.

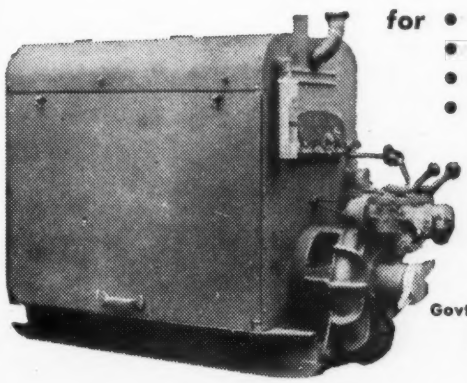
Kansas Group Attempts to Head Off Possible Oil Tax

A severance tax on minerals, usually discussed at past sessions of the Kansas legislature and expected to be presented again in 1949, will be fought hard by the Kansas Industrial Development Commission which is trying to meet the situation before it arises.

The commission pointed out that Kansas now has, in reality, a severance or gross production tax on oil and gas. Every barrel of oil produced in Kansas for the last year is being assessed this year on an annual basis of $650, at the ad valorem rate. This means that an oil well with an average daily production of 10 bbl. of 40°-gravity oil is valued at $6,500 for ad valorem tax purposes.

It is further emphasized by the group that although such a tax, if approved, would be levied against all minerals produced in Kansas, its advocates are aiming particularly at oil and gas production.

FIRE PROTECTION!



for
- CAMPS
- REFINERIES
- PUMP STATIONS
- COUNTRY ESTATES

We offer these NEW surplus CHRYSLER-HALE Pumps at Less than cost of pump alone!

Govt. Cost over $1600

Price $850.00

FOB Rockdale, Tex.

PUMP DATA
- HALE MODEL OCD 1001
- 500 GPM — 120 LBS. PRESSURE
- EJECTOR PRIMING
- 4" SUCTION — 2½" DISCHARGES
- COMPACT — EFFICIENT

ENGINE DATA
- CHRYSLER T-118
- 6 CYLINDER
- 3⅞ x 4¼ — 236 CU. IN.
- RADIATOR
- STARTING EQUIPMENT

NEW—BOXED—IMMEDIATE DELIVERY

Subject Prior Sale

Weight 1600 Lbs.

H. H. COFFIELD

Phone 132 Rockdale, Texas Box 466

STATISTICS and

WEEKLY WELL COMPLETIONS . . . WEEK ENDED OCTOBER 30, 1948

	Total of all wells					Cum.		Wildcat completions and discoveries					Cumulative total, 1948				
	Comp.	Oil	Gas	Dry	Footage	1948	1947	Oil	Dist.	Gas	Dry	Total	Oil	Dist.	Gas	Dry	Total
New York	24	12	0	*12	26,413	1,263	1,423	0	0	0	0	0	0	0	0	0	0
Pennsylvania	47	23	2	†22	74,248	2,155	2,552	0	0	0	0	0	0	0	9	14	23
West Virginia	13	3	7	3	30,129	681	732	0	0	0	0	0	3	0	36	39	78
Ohio	25	11	5	‡9	66,702	1,170	1,118	0	0	0	0	0	2	0	10	31	43
Indiana	15	6	0	9	31,738	897	545	0	0	0	2	2	22	0	1	61	84
Kentucky	22	8	6	8	45,171	649	599	0	0	0	2	2	8	0	0	36	44
Illinois	63	34	0	29	156,317	2,071	1,739	2	0	0	11	13	42	0	1	324	367
Michigan	26	14	1	11	59,685	718	755	2	0	0	6	8	16	0	9	220	245
Kansas	83	39	6	§38	280,041	2,618	2,241	3	0	1	16	20	51	0	7	370	428
Neb., Mo., Iowa	1	1	0	0	2,535	9	5	0	0	0	0	0	0	0	0	7	7
Oklahoma	83	39	8	‡36	312,938	3,479	3,421	1	0	1	18	20	106	7	27	540	680
Texas	226	144	4	78	984,841	9,916	7,647	6	0	0	43	49	290	29	86	1,713	2,118
North Central (Dist. 7-B & 9)	58	34	0	24	160,593	3,084	2,427	1	0	0	14	15	105	0	13	629	747
West (Dist. 7-C & 8)	64	54	1	9	314,435	2,686	1,851	3	0	0	3	6	61	1	5	194	261
Panhandle (Dist. 10)	15	14	0	1	46,793	532	387	0	0	0	0	0	0	0	3	8	11
Eastern (Dist. 5 & 6)	17	9	2	6	93,334	487	455	1	0	0	4	5	12	3	0	100	115
Gulf Coast (Dist. 2 & 3)	33	15	0	18	190,693	1,549	1,318	1	0	0	11	12	66	20	30	363	479
Southwest (Dist. 1 & 4)	39	18	1	20	178,993	1,578	1,209	0	0	0	11	11	46	5	35	419	505
Louisiana	34	28	0	6	168,496	1,950	1,304	1	1	0	3	5	42	23	7	181	253
Northern	21	19	0	2	46,678	1,324	773	0	0	0	1	1	4	3	2	91	100
Southern	13	9	0	4	121,818	626	531	1	1	0	2	4	38	20	5	90	153
Arkansas	6	3	0	3	27,379	257	266	0	0	0	3	3	5	0	0	77	82
Mississippi	6	2	0	4	39,023	346	409	0	0	0	3	3	4	1	3	82	90
Southeastern States	1	0	0	1	12,120	45	54	0	0	0	1	1	0	0	0	41	41
Montana	12	9	1	2	31,422	243	246	1	0	0	1	2	4	0	0	19	23
Wyoming	19	14	0	5	93,784	462	209	2	0	0	2	4	24	0	2	55	81
Colorado-Utah	4	2	1	1	20,519	193	170	0	0	0	1	1	2	0	5	41	48
New Mexico	12	7	2	3	47,921	500	443	0	0	1	2	3	4	1	3	44	52
California	66	49	0	17	280,930	2,384	1,672	2	0	0	16	18	104	1	5	283	393
Total United States	788	448	43	297	2,792,352	32,006	27,550	20	1	3	130	154	729	62	211	4,178	5,180
Total previous week	820	434	67	319	2,748,118	31,218	26,782	16	1	4	125	146	709	61	208	4,048	5,026
Total November 1, 1947	768	403	99	266	2,699,452			17	0	8	86	111	587	79	187	3,378	4,231

Service wells included: *12, †21, ‡1, §2.

CRUDE PRICES AND REFINERY ACTIVITY

GRAVITY SCHEDULES

Gravity—	Signal Hill, Calif.	Okla-homa, Kansas	Gulf Coast Tex.*	West Tex.†
18-18.9	$2.17	....	....	....
19-19.9	2.19	....	....	....
20-20.9	2.21	$2.25	....	$2.12
21-21.9	2.23	2.27	....	2.14
22-22.9	2.27	2.29	....	2.16
23-23.9	2.30	2.31	....	2.18
24-24.9	2.34	2.33	$2.56	2.20
25-25.9	2.38	2.35	2.58	2.22
26-26.9	2.41	2.37	2.60	2.24
27-27.9	2.45	2.39	2.62	2.26
28-28.9	2.49	2.41	2.64	2.28
29-29.9	2.52	2.43	2.66	2.30
30-30.9	2.56	2.45	2.68	2.32
31-31.9	2.59	2.47	2.70	2.34
32-32.9	2.62	2.49	2.72	2.36
33-33.9	....	2.51	2.74	2.38
34-34.9	....	2.53	2.76	2.40
35-35.9	....	2.55	2.78	2.42
36-36.9	....	2.57	2.80	2.44
37-37.9	....	2.59	2.82	2.46
38-38.9	....	2.61	2.84	2.48
39-39.9	....	2.63	2.86	2.50
40 and above	....	2.65	2.88	2.52

*For crude from Daboval, El Campo, and Sand Point. †Includes Lea County, New Mexico. Last general price change represented a 50-cent increase becoming effective December 6, 1947. (For detailed price changes in all fields see The Oil and Gas Journal, January 1, 1948, page 107.) Effective September 28, 1948, Phillips Petroleum Co. advanced prices 35 cents per barrel over those shown in above table in fields of southwestern states where it buys. Advance has not been generally met by other buyers.

A.P.I. REFINERY REPORT, WEEK ENDED OCTOBER 23

District—	Crude runs, daily avg.	(Thousands of barrels) Production: Gasoline†	Kerosine	Gas & dist. oil	Residual	Stocks at refineries, bulk terminals, in transit and in pipe lines: Gasoline*	Kerosine	Gas & dist. oil	Residual
East Coast	883	2,380	315	1,266	1,654	21,359	11,456	25,534	12,715
Appalachian:									
District 1	99	289	50	92	76	2,163	444	983	478
District 2	67	204	19	55	103	1,028	135	264	209
Ind., Ill., Ky.	928	3,376	370	852	1,070	18,847	4,770	12,072	6,358
Okla., Kans., Mo.	435	1,619	161	586	521	8,335	1,590	6,431	2,845
Inland Texas	233	1,020	72	200	416	3,319	811	1,231	1,225
Texas Gulf Coast	1,347	4,257	653	2,344	1,691	15,495	3,788	13,651	10,224
La. Gulf Coast	447	1,159	295	747	561	5,438	2,581	4,296	3,378
N. La. and Ark.	88	233	65	80	130	2,110	660	679	318
Rocky Mountain:									
New Mexico	15	50	7	12	28	70	25	57	33
Other Rocky Mtn.	151	470	30	191	228	1,762	327	1,535	899
California	863	2,181	40	906	2,749	11,148	742	13,558	42,007
October 23, 1948	5,556	17,238	2,077	7,331	9,227	91,074	27,329	80,291	80,751
October 16, 1948	5,562	17,424	2,289	7,528	9,191	91,483	26,992	78,647	79,411
October 25, 1947	5,165	16,529	2,050	6,638	8,666	82,003	23,014	62,609	57,419

*Finished and unfinished. †At refineries including natural blended.

Bureau of Mines crude-oil stocks 228,594,000 bbl. as of October 23—up 843,000 bbl. One year ago 224,308,000 bbl.

FLAT CRUDE PRICES

Representative posted schedules per bbl.	
East Texas	$2.65
Kettleman Hills, California*	2.14
Beauregard Parish	2.60
Illinois Basin	2.77
Pecos County, Texas (Yates)	2.35
Bradford, Pennsylvania	3.00
Eastern Ill. and Western Ind.†	2.77
Tomball, Texas Gulf Coast	2.83

*37°-37.9°. †35° and above.

TRENDS

DAILY AVERAGE PRODUCTION FOR WEEK

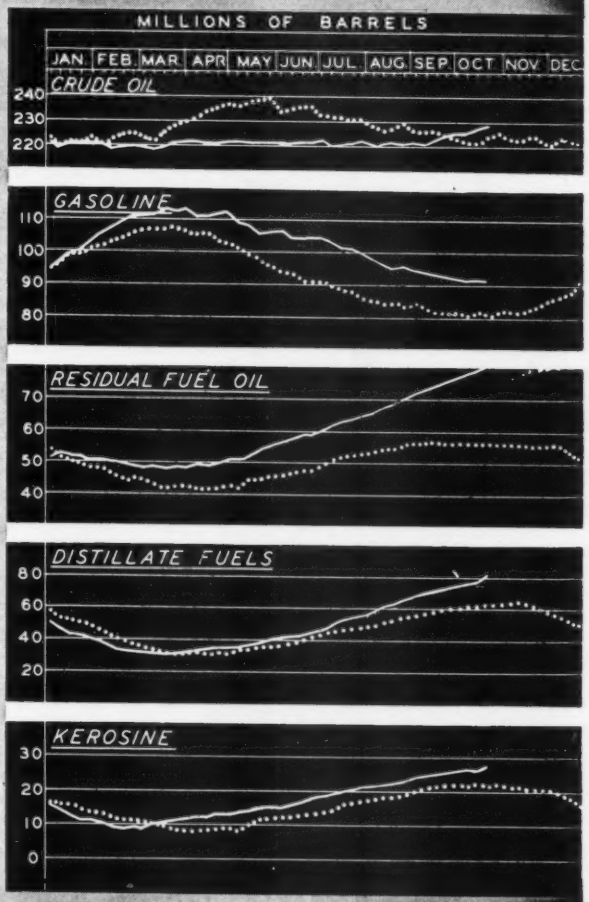
	Oct. 30 crude oil	B. of M. Oct. demand	Oct. 23 crude oil
Alabama	1,350	1,200	1,450
Arkansas	79,750	89,000	81,200
California	954,750	965,000	949,000
Colorado	48,250	50,000	47,990
Eastern	64,000	65,300	67,250
Florida	925	800	975
Illinois	181,200	168,000	178,000
Indiana	25,400	17,000	26,000
Kansas	306,600	306,000	306,950
Kentucky	24,500	24,000	24,000
Louisiana	480,600	502,000	481,250
North Louisiana	112,300	.....	112,950
South Louisiana	368,300	.....	368,300
Michigan	48,900	45,000	45,500
Mississippi	129,250	131,000	126,350
Montana	25,460	26,000	26,010
Nebraska	350	700	350
New Mexico	133,310	138,000	133,310
Oklahoma	435,200	438,000	434,450
Texas	2,507,000	2,500,000	2,507,000
Dist. 1 (Southwest)	28,485	.....	28,485
Dist. 2 (Southwest)	179,675	.....	179,675
Dist. 4 (Southwest)	254,300	.....	254,300
Dist. 3 (Gulf Coast)	504,565	.....	504,565
Dist. 5 (Eastern)	51,250	.....	51,250
Dist. 6 (Eastern)	121,800	.....	121,800
East Texas Field	301,500	.....	301,500
Dist. 7-C (West)	47,875	.....	47,875
Dist. 8 (West)	728,975	.....	728,975
Dist. 7-B (W. Central)	57,675	.....	57,675
Dist. 9 (N Central)	142,400	.....	142,400
Dist. 10 (Panhandle)	88,500	.....	88,500
Wyoming	157,130	153,000	160,700
Total United States	*5,603,925	5,620,000	5,597,735
Change from prev. wk., up	6,190		

Total production January 1-October 30 †1,670,304,870 bbl.
Same period last year (crude plus cond.) 1,526,382,700 bbl.

*Not incl. 77,215 bbl. condensate. †Incl. 22,546,910 bbl. condensate.

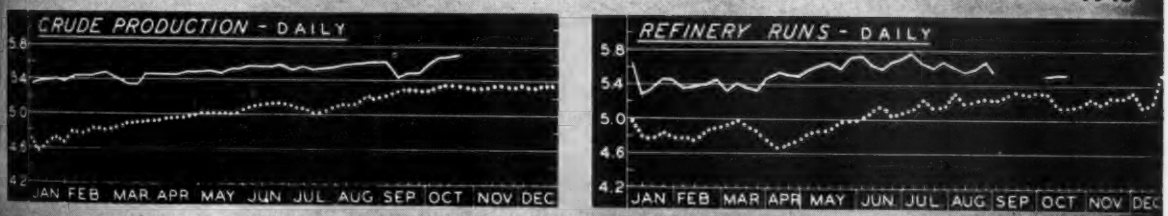
STOCKS IN UNITED STATES

---- 1947 ——— 1948



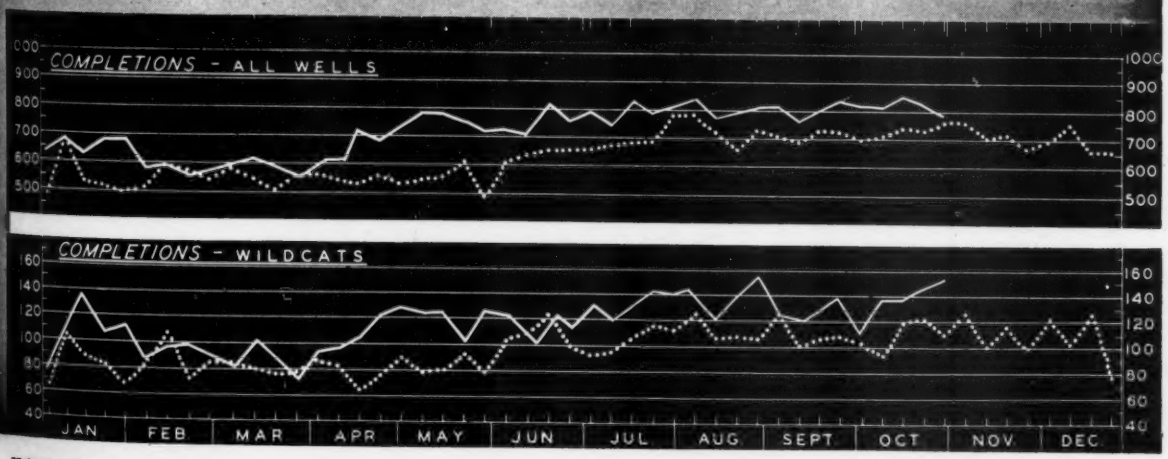
DAILY OPERATIONS

---- 1947 ——— 1948

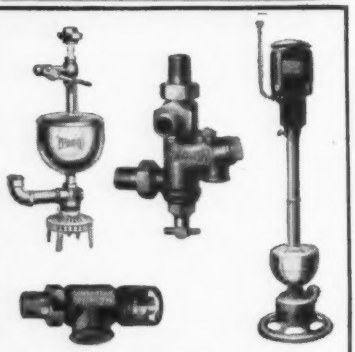


WEEKLY COMPLETIONS

---- 1947 ——— 1948



PENBERTHY
QUALITY
PRODUCTS



Penberthy injectors—ejectors—automatic electric and water (or steam) operated sump pumps are all widely used throughout the oil industry because they have always been dependable under the most severe service conditions.
All are of rugged construction and made by an organization with 59 years experience in the manufacture of highest quality products.

PENBERTHY INJECTOR CO.
DETROIT 2, MICH. Canadian Plant WINDSOR, ONTARIO

BAR-BE-KETTLE
a Man's Gift
In use by many prominent OIL MEN
(names furnished upon request)

IMAGINE—COOKING WITHOUT ANY FLAME

The "Bar-Be-Kettle" Brings You A Time-Tested Cooking Method In Modern Form.

Two Thousand years ago the Chinese roasted their meats by HEAT AND SMOKE ALONE—by placing a lid over their ovens.

The "Bar-Be-Kettle", by means of its lid, uses the same fundamental approach. Heat from charcoal, plus heat from the heavy cast-iron kettle, plus the smoke—all combined give you that perfect barbecue flavor.

Meat is never burned by flames.

"Bar-Be-Kettle" has five parts—kettle, lid, damper and two grills, one for the charcoal in the bottom of the kettle and the other the meat grill.

USE BAR-BE-KETTLE IN YOUR FIREPLACE DURING THE WINTER-TIME.

20″ diam., 13″ high, weight 90#.

$34.75, less 10% in quantities of four or more, delivered PREPAID parcel post in United States.

W. B. MILLISON COMPANY
Colorado Springs, Colo.

MARKETS

IN the Mid-Continent area strength in the petroleum products market was reflected in the fact that kerosine, No. 1, and range oil continued to be closely held by some refiners. Although movement of No. 2 was extremely slow, refiners generally were concerned only in moving enough material so as to ease the storage problem.

The present "ragged" market for this material could easily change "nearly overnight" with the first indication of prolonged cold weather. For this reason refiners were reported to be very "discreet" in moving large quantities of No. 2 particularly for future deliveries. Because jobbers' storage is now at a comfortable level as is the case of most consumers, one observer said that he would not be surprised if the No. 2 fuel market did not become "too important" before the first part of December.

Kerosine, now closely held by refiners, is expected to tighten considerably—not to the extent as was the situation last year, but it may easily prove to be the "scarce" item this winter. No. 1 and range oil may feel a similar pinch.

No. 6 continued to be the product refiners would like most to move. One Mid-Continent supplier last week reduced his posted price for spot-market sales of No. 6 from $2.30 to $2.00, f.o.b. Group 3. The same supplier reduced his posted price for 130-132 crude scale wax from 5¼ to 5 cents per pound.

Gasoline was far from being a weak spot in the petroleum products market last week. Tank-car material in the Mid-Continent area was exceedingly hard to find, one buyer reported. In North Central and East Texas the situation was much the same with most offerings in small lots. The natural-gasoline market was reported strong and the tank-car situation "tight."

Gulf Trading Eases

In the Gulf Coast area spot-market petroleum products generally eased somewhat along with the apparent dimming of the possibility of a general crude-price increase. Some No. 2 fuel-oil transactions were reported and most of these for prompt delivery at 9 cents per gallon. A few sales were reported for delivery as far in advance as early December. The market for No. 6 residual oil continued sluggish with little interest shown by buyers for the material. Inquiry from foreign sources for South Texas grade lubricating oils was reported to have increased appreciably in the past week.

Harbor Inquiries Strong

An increase in inquiries for light heating oil at New York Harbor was noticeable last week. Actual sales on the open market, however, were said to be relatively light. The most generally quoted asking price for spot No. 2 oil ranged between 9.8 and 10 cents, while most bids were said to be even weaker.

One supplier along the Eastern Seaboard last week increased his commercial butane price from 7.5 to 8.25 cents per gallon, making the quotation for this material the same as for propane.

Demand for home heating oils in the New York area continued light despite the drop in temperature over the past 2 weeks. Most dealers were of the opinion that it will take at least two more weeks of cooler weather to show any appreciable increase in consumer demand because of the comfortable storage position they now have. Prices generally remained unchanged along the Atlantic Seaboard.

Representative Quotations

Representative spot-market quotations of leading suppliers as of November 1, 1948. **Figures are f.o.b. plant for tank-car shipment in cents per gallon, except for residual fuel oil which shows the price per barrel and wax, in cents per pound.**

GASOLINE, KEROSINE, AND FUEL OILS

	Mid-Continent Group 3	New York Harbor	Texas Gulf Coast
Regular gasoline, 73-75 octane	10¼-10½	11.6-12* 10.5-11.9†	10¼-11⅛
Premium gasoline, 78-80 octane	11-11¼	10.6-13.4	11-12¼
42-44 w.w. kerosine	9½-9¾	10.3-11.7	9½-10¼
No. 2 straw fuel oil	9-9¼	9.4-10.1	9-9½
No. 6 residual	$1.75-2.00	$3.03-3.27	$2.20-2.52

*Branded (74-76 octane); †Unbranded (74-76 octane).

NATURAL GASOLINE

	Group 3	North Texas	N. La
Grade 26-70	8½	8	8¼
Grade 18-55	10.2	9.8	9.9

LUBRICATING OILS

South Texas

200 vis., No. 2-3 neutral	12-13.5
750 vis., No. 3-4 neutral	15-16.5
2,000 No. 5-6 neutral	17-18.5

LUBRICATING OILS

Mid-Continent

150-160 vis., D bright stock, 0-10 pp.	31-3
200 vis. No. 3 neutral, 0-10 pp.	18-2

Western Pennsylvania

145-155 vis. 10 p.t. bright stock	6
180 vis. p.t. neutral	6

CRUDE-SCALE WAX

Mid-Continent

132-134 A.M.P.	5¼

EQUIPMENT MEN ... in the News

Franklin Touring South America

Robert K. (Bob) Franklin, president of Rolo Manufacturing Co., Houston, has returned from an extensive tour of Canada and Western United States including California, Montana, and Wyoming. While in Canada, he visited Leduc oil field in Alberta for a glimpse of the Canadian wild well. He is now visiting Venezuela and Trinidad, S.A., where he will study the oil fields of these countries.

Grove Opens Houston Branch

A new southwest factory branch has been opened by Grove Regulator Co., Oakland, Calif., at 3608 Navigation Boulevard, Houston. The new sales and service branch will be staffed with experienced field engineers, trained in the application of Grove regulators and valves.

Nikoh to Demonstrate Pipe Manufacture

Arrangements have been made to demonstrate to the petroleum industry the Nikoh method of producing 6-in. line pipe during the A.P.I. convention in Chicago. The Nikoh Co. plant has the only pipe mill of its kind and size in operation in the United States, according to Harry J. Mokate, vice president. Other manufacturing facilities will also be shown. Special transportation is being provided to leave the Stevens Hotel at 11 a.m. November 10. Guests of Nikoh will be invited to remain for luncheon.

American Cyanamid Appoints Campbell

American Cyanamid Co. announces the appointment of Arthur J. Campbell as division manager of the industrial chemicals division. Campbell, who was formerly general sales manager of this division, has been with the company for many years. Under his supervision the industrial chemicals division produces and sells synthetic organic chemicals, petroleum catalysts, additives, and other products.

Wheland Appoints Black, Campbell & Ferguson

JAMES E. BLACK

Gordon P. Street, president, Wheland Co., Chattanooga, has appointed James E. Black, personnel director, to head up redesign, promotion, and sale of Wheland rotary drilling equipment for the petroleum industry. As personnel director, Black has been involved in Wheland's large-scale, long-term program of product redesign and improvement on rotary-drilling equipment.

V. M. CAMPBELL

L. E. FERGUSON

Vann M. Campbell has been appointed to represent the company in the Gulf Coast area. His headquarters are the Jones & Laughlin offices, Houston. He has had 18 years of practical oil-field experience.

Laurence E. "Ferg" Ferguson resigned as sales manager of Franks Manufacturing Corp., Tulsa, to accept a position with Wheland as sales representative covering Oklahoma and Kansas. He has had 22 years' experience with the petroleum industry. His headquarters are in the Jones & Laughlin offices, Tulsa.

Torrey Elected President

Paul D. Torrey, petroleum engineer, has been elected president of Lynes, Inc., manufacturers of Lynes Hydraulic Packer Tools, with address at 7042 Long Drive, Houston.

Murray Speaks Before Houston Nomads

W. J. Murray, Jr., member of the Texas Railroad Commission, was the principal speaker at recent meeting

Furniss Prell, program chairman, Nomads; W. J. Murray, Jr., Texas Railroad Commission, and H. E. Thornhill, president, Nomads

of the Houston Nomads. Murray paid tribute to American manufacturers of oil-industry equipment and the important part they have played in developing the oil industry to its present high degree of efficiency and praised them highly for their assistance in the conservation of natural resources. More than 150 Nomads and guests attended the meeting held at the College Inn.

Honegger Elected Director Farrel-Birmingham

Farrel-Birmingham Co., Inc., Ansonia, Conn., has elected Robert M. Honegger, general manager of the company's Buffalo plant, a member of the board of directors. A native of Buffalo, where he still makes his home, Honegger first entered the employ of the Farrel company in 1925 as a member of the engineering department.

McCullough District Manager For Stacey-Dresser

Stacey-Dresser Engineering, a member of Dresser Industries, Inc., has appointed O. E. McCullough, Jr., as district sales manager with offices in the Praetorian Building in Dallas. Stacey-Dresser Engineering is a di-

vision of Stacey Bros. Gas Construction Co., which specialize in gas-manufacturing and treating processes. McCullough, who studied at Southern Methodist University, comes to Dallas from the company's Cleveland office.

Forker, Kopetz and Moser Elected by Blaw-Knox

R. E. MOSER

Edson W. Forker has been named president and George E. Kopetz and Ralph E. Moser have been named vice presidents of the chemical plants division of Blaw-Knox Construction Co. Forker joined Blaw-Knox company in 1927 and is a vice president of the Blaw-Knox division in charge of process equipment. He has managed the chemical plants division since its formation in 1939. Kopetz came to Blaw-Knox in 1939 and assisted in the organization of the chemical plants division of which he has been contract manager. In 1942 Moser joined the staff of chemical plants division to assume duties as manager of construction.

E. W. FORKER

G. E. KOPETZ

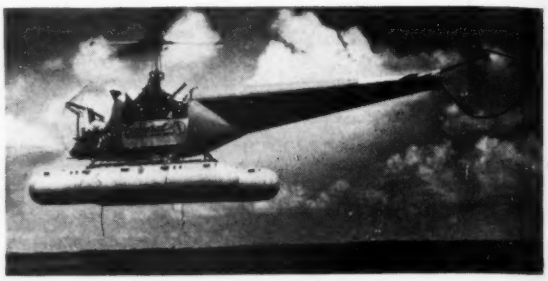
White Appointed Sales Engineer by LeTourneau

Charles L. White has been appointed sales engineer in the Tournarope sales department for R. G. LeTourneau, Inc., Peoria. He will be the company's representative in Texas, New Mexico, Arizona, Colorado, Utah, and Oklahoma. Associated with the wire-rope industry the past 20 years, White has a wide experience in the oil industry.

Before coming to LeTourneau, he was with Bridgeport Machine Co., Wichita; Williamsport Wire Rope Co., Williamsport; and Bethelehem Steel Co. branch office, Houston. He will headquarter in Fort Worth.

Bell Hellicopter Used In Geophysical Work

Bell helicopters, as used by major oil and geophysical companies, are said to substantially increase production on both gravity and seismic surveys. Gravimeter readings are made without removing the meter from the helicopter. This is accomplished by placing the meter on a tripod which is lowered through the floor of the cockpit. In seismograph marsh work, surveying, drilling, cable laying, shooting, and recording operations are also airborne. Cost per profile is said to be comparable and permit difficulties are materially lessened.



Helicopter used by General Geophysical Co.

Mud Products Names Dyer Division Manager

S. T. DYER

E. R. Albert, Jr., general manager of Mud Products, Inc., Tulsa, has appointed Sam T. Dyer manager of the Gulf Coast equipment division. Formerly with Reed Roller Bit and Jarecki Supply Co., Dyer will headquarter in Houston. He will service supply stores and drilling contractors and act as engineering consultant on mud-handling problems. He is a former coach of freshman football at Rice Institute and brother of Eddie Dyer, manager of the St. Louis Cardinals, and Joe Dyer, independent operator in Denver.

Cameron Appoints Giraud

CHARLIE GIRAUD

Cameron Iron Works, Houston, has appointed Charlie Giraud as salesman in the Houston district. Giraud has been a member of the Cameron sales department for the past 2½ years, having served a total of 8 years with the Cameron organization.

Wickersham-Petty Open Fisher Office

Fisher Governor Co., Marshalltown, Iowa, has appointed Wickersham-Petty & Co., Park Square Building, Boston, as district sales representative in that area. Prior to opening the new Boston sales office, Wickersham managed the Fisher office in New Haven. Petty was a member of the sales engineering department at the Fisher home office in Marshalltown.

Pyeatt Made Sales Manager

Aeroquip Sales & Engineering, Inc., distributors of flexible-hose assemblies and self-sealing couplings who recently moved its headquarters to Fort Worth, has announced appointment of L. A. Pyeatt as general sales manager Pyeatt was formerly associated with Mid-Continent Supply Co. as district manager of the West Coast district in Los Angeles.

Mud Products Adds Vickers to Staff

Mud Products, Inc., Tulsa, distributors of mud and mud-handling equipment, has announced appointment of W. G. Vickers to its sales and engineering staff, according to E. R. "Dick" Albert, general manager. Vickers served 14 years in the field in drilling and production, and until his present association with Mud Products served with Baroid in the specialty department. With headquarters in Henderson, Tex., Vickers will cover Southeast Texas and parts of Louisiana.

(Continued on page 159)

Classified Advertising

The Market Place for the Oil Industry

UNDISPLAYED

All ads, 12 cents a word. Minimum charge, $3.00 per insertion.
Centered Line, any ad, $1.00.
Box Numbers count 9 words when replies are to be sent to our Tulsa Office. Replies forwarded without charge.

DISPLAYED, PER INCH

$12.00 per column inch per insertion. One-point border and 12-point capitals are allowed. Larger type sizes not accepted.

All classified advertising payable in advance.
10% Discount if 3 insertions are ordered at one time.
COPY DEADLINE, 9:00 a.m. Monday prior to each week's issue.

THE OIL AND GAS JOURNAL
P. O. Box 1260, TULSA, OKLAHOMA

EQUIPMENT FOR SALE

FOR SALE at Pampa, Texas, 30 used Type OB-36 Ideal Throwoffs with covers, figure H-963-D National Supply catalog, $35.00 each. Cities Service Oil Company, Patridge, Bartlesville, Oklahoma.

PIPELINE Construction Equipment for Sale: Pipe cleaning machine with priming head, traveling or stationary, 6" to 12", excellent condition, $1,350. Two T40 International tractors with pipelayer attachments good condition, very cheap. Contact C. W Sternberg, 8250 Wier Drive, Houston, Texas Phone Preston 7043.

VERY complete cable tool drilling outfit, in Kansas. Includes 4,000 feet casing and many, many other items. Full inventory furnished on request. Price $40,000. Write Box 2153, Denver, Colorado.

CLARK 80 hp. direct driven compressor with 6¼" or 13" compressor cylinder. Bessemer Type 10 single with choice of 5" single acting or 7½", 9" or 15" double acting compressor cylinders. J. F. Swab, Citizens Bank Building, Tulsa, Oklahoma.

FOR SALE

1—125 H. P. 350# Working Pressure "Oil Well Boiler," excellent condition. Completely reconditioned. Not used since last approved by State Boiler Inspector. Priced to sell.

POWELL BRISCOE, INC.
1916 First National Bldg.
Oklahoma City, Oklahoma

WE BUY and SELL

Steel Pipe and Tubing
Pipe Fittings—Well Casing
Culverts and Valves

SONKEN-GALAMBA CORP.

2nd & Riverview, Kansas City 18, Kans.

EQUIPMENT FOR SALE

FOR CABLE TOOLS
DEGEN PIPE AND SUPPLY CO.
Box 107, Red Fork Station, Tulsa, Oklahoma

FOR SALE. Wilson Master Model Winch powered by 6 MZR Waukesha engine. Unit mounted on one and one-half ton Chevrolet truck equipped with fifty foot single pole telescoping mast. Terms. Melton Supply Company, Seminole, Oklahoma.

MANUFACTURERS LATEST DESIGN

Hydraulic Casing Pulling Units. Complete line of equipment. Units made to your specifications. Truck Mountings or Skid Units. Repair Service and Parts.

OKLAHOMA MACHINE & SUPPLY CO.
Ada, Oklahoma

SHOT HOLE DRILLS
LARGE AND SMALL

All are truck mounted, rotary, chain pull down, smallest pump size 3½ x 5. Some are in excellent condition, others need repairs. Price FOB Dallas from $3,000.00 to $8,000.00 including truck. For details write 8800 Lemmon Ave., Dallas 9, Texas.

EQUIPMENT FOR SALE

1,900' 5½" O.D. 17# Lapweld and 900' 5½" O.D. 20# Seamless all first class condition. Located McPherson, Kansas. Jay Kornfeld, 1121 Union Natl. Bank Bldg., Wichita, Kansas.

USED Le Roi 6-, 8-, and 12-cylinder gas engines, complete and in A-1 condition for oil industry power. Priced to sell. Also one Model NKU Waukesha $1500. Write or call today. General Machine & Supply Company, P. O. Box 72, Wichita Falls, Texas

FOR SALE; 20 KW-120—1 phase 60 cycle AC Western Electric Generating Unit LeRoi 382 Engine skid-mounted complete panel with voltage regulator, meters, circuit breaker, etc. Unused. Sacrifice. W. H. ORR, Rockdale, Texas. Phone 77.

FOR SALE

24 Trace Model 16-D E.L.I. Seismograph Recorder mounted on 1947 Ford 1½ ton truck (approximately 14,000 miles) complete with 52 Seismometers, 28 Galvanometers, Cables, etc. Like new.

$14,975

F.O.B. TULSA

WRITE:

802 Daniel Building
Tulsa, Oklahoma

FOR SALE — DANCIGER REFINERY

7,500 Barrel Capacity, 4,000 Barrel Cracking U. O. P.

Complete and up to date made 86 to 87 octane gas for Navy. Approx. 500,000 barrels storage. 3—500 H.P. Heine Boilers installed, one complete new 500 H.P. not installed. Located on approx. 84 acres Longview, Texas. Will lease, or sell entire plant. For inspection see L. D. Shepler at refinery site.

Write—Wire—Phone

W. C. BERRY, OWNER

319 Wright Bldg. **Tulsa, Okla.**

EXCELLENT 6,500-Ft. ROTARY RIG

Complete and Ready to Drill—Attractively Priced

Practically New Drill Pipe

Wilson "Giant" drawworks No. 6464 with spinning and breakout catheads, powered by two 225 H.P. Le Roi engines—127-ft. Oil Well mast with substructure—7¼" x 14" Emsco pump—Regan block—6" Ideco swivel—27½-A Oil Well Rotary—125-ton B-J hook—water tanks—Kohler light plants—tool houses—measuring device—water pump—shale separator—pipe straightener—and late-type accessories for complete drilling rig. 4½" drill pipe with 6" O.D. tool joints has drilled three 6,000 ft. wells since new. Located at Oklahoma City.

LUCEY PRODUCTS CORPORATION
OIL WELL SUPPLIES
TULSA, OKLAHOMA

EQUIPMENT FOR SALE

FOR SALE: Wilson Mogul draw works, powered by G.A.K. Waukesha engine. Good condition, priced for quick sale. Terms. Melton Supply Company, Seminole, Oklahoma.

FOR SALE: 12—5½" OD 8 Rd. Thrd. Orbit Fig. A503 3000# test S. E. Steel Drilling Valves. Good as new—$260.00 each. Zanesville Tool & Supply Co., Wooster, Ohio.

FOR SALE: 600 ft. 7" OD 17# Lapweld T/C—$2.00; No. 1—2", 2½", 3½" OD and 4½". 409 Bewley Bldg., Fort Worth, Texas. Phone 2-1620.

FAILING MODEL 314-C truck-mounted rig, water truck, Wheatley 6x6 pump, tool trailer, light plant, and complete tools. Most complete rig and low price warrant attention. W. D. Glenn, Box 428, Aurora, Colorado.

SULLIVAN 200 core drill, truck-mounted, swivel, traveling block, cable, 45-foot mast, Buda motors, 5x8 Gardner pump, $15,000. Pampa, Texas. Box C-658, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE

12—230 H.P. Type 10 Bessemer New 17" Power Cylinders complete ready to run with 16" to 18" Compressors. 1—230 H.P. Clark Horizontal with Compressors. Located Salem, Illinois.

ENGLE PETROLEUM, Incorporated
Box 655, Evansville, Indiana

FOR SALE

Two Diesel Generator Rotary Drilling Rigs, one Waukesha Powered Rig. Complete inventory and prices on request.

CITIES SERVICE OIL COMPANY
Mr. Patridge, Bartlesville, Oklahoma

STEEL TANKS IN STOCK
2—74,000 BBL. LIKE NEW 114' X 40' TANKS ARE CLEAN—AT MORGANTOWN, W. VA.
1—5000 BBL. BOLTED AT NEW YORK
2—1000 BBL. BOLTED AT NEW ORLEANS
DAIREN CORP., 60 E. 42ND. ST., NEW YORK 17, N. Y.

FOR SALE

20—10,000 barrel used closed lapwelded steel tanks, in excellent condition.

Will take contract for erection. Immediate delivery.

A. Greenspon Pipe Co. Inc.
3615 Olive St., St. Louis 8, Mo.
FRanklin 0064 Franklin 1606

PRESSURE VESSEL—REACTION CHAMBER

4' OD x 44' x 4" thickness.

Condition guaranteed.

Priced for immediate sale.

Petroleum Equipment, Inc.
P. O. Box 887 Thrasher Bldg.
Telephone 2-6291 Tulsa, Oklahoma

EQUIPMENT FOR SALE

FOR SALE: Cardwell Drawworks, Model "L"—Air Clutches—A-1 Condition. Box 3246, Corpus Christi, Texas.

DRILLING equipment, reconditioned ready for delivery, Failing, Franks, Eli Tulsa, Longyear, American, Sullivan, Fort Worth, Wichita, Keystone, National, Standards. Also steel derricks, cable tools, cable and good used casing, most sizes. Pressey & Son, Pueblo, Colo.

28-L BUCYRUS-ERIE SPUDDER, trailer mounted, has casing tackle equipment. 1/5 below delivered price. Perfect condition, almost new. Owner wants to drill at Silverton, W. Va.; will let drilling contract to buyer. Tools optional. 2/3 cash minimum. Box C-656, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: Franks Model D shot hole drill. Mounted on 1942 Ford. Rig and truck in A-1 condition. Must see to appreciate. $3,500 cash. Seismograph Drilling Supply, Britton, Oklahoma.

FOR SALE: 1,000 ft. 10" casing 40 lb.; 2,500 ft. 8" casing 28 lb.; 3,000 ft. 7" O.D. casing 20 lb.; 4,500 ft. 2" tubing & rods. Will sell pipe in ground or will have it pulled but want to make deal while in ground to save hauling to yard. Arthur Lyke, Hamilton, Kansas.

CATERPILLAR D-13000 Diesel Power Unit, 150 HP—completely rebuilt—$3500.00. Martin Tractor Co., Chanute, Kansas.

CARDWELL M-188 Mobile Hoist with 55' Telescoping Mast and new K-428 Buda Engine—$10,500.00. C. O. Jones, P. O. Box 510, El Dorado, Kans.

FOR SALE

Four new 1948 Dodge WDX 1-ton Power Wagons. Complete with winch and express (pickup) body. List Price f.o.b. Tulsa.

WIRE — WRITE — PHONE

Century Geophysical Co.
1333 North Utica
Tulsa, Oklahoma
Phone 5-1171

EQUIPMENT FOR SALE

FOR SALE: Oil Field Blacksmith's Shop Equipment, 1100 pound steam hammer and 40 horse power boiler. Stock of Sealed Power Compression Piston Rings for Oil Field type engines, 9" to 17" diameter. We are discontinuing sale of these rings. Will sell all or part. Priced to sell. Inquire, Worth Machine Shop, 1200 North Lansing, Mt. Pleasant, Michigan.

FOR SALE: Adsco Expansion Joint, 6" 125-lb. single. Double joint, 5" 250-lb. pressure. New, never used. David Stoner, Rt. 2, Connersville, Indiana.

FOR SALE: WAUKESHA MODEL W-K 6¾" bore by 8" stroke. Suitable for large spudder. Just overhauled and in perfect condition. Phone 4-2101, Tulsa, Oklahoma.

FOR SALE: Wilson Super Model Winch powered by 6 MZR Waukesha engine Terms. Melton Supply Company, Seminole, Oklahoma.

FOR SALE: Model 76 Star Drilling Rig complete w/ 5" & 7" tools. Dietz Drilling Co., 438 N. Elm St., Henderson, Ky.

MURPHY DIESEL, ME-66

Brand New—Sacrifice—At OEM's Cost 1103 cu. in., 6-cylinder, 180 HP, @1200 RPM. Never been used. 20% off list. Contact: Box C-613, The Oil and Gas Journal, Tulsa, Oklahoma.

EQUIPMENT WANTED

WANTED: Used Cross Reaction Chamber. Approximately 5' OD x 44' long. State price, condition, location, enclose sketch. Box C-422, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE

ALUMINUM PAINT—200—6 gallon cans. Exterior Spar Varnish vehicle. Highly polished, Aluminum Paste pigment in separate container. Distributors Liquidation. Regular price $33.60—take any part, $12.00 per 6 gallon can. Send check with order. The National, 606 Walnut, Kansas City, Missouri.

TENNESSEE—88,000 acres, fee $3 per acre; est. 100 miln. ft. timber; full mineral rights; details, E. Jester, 12744 Vanowen, N. Hollywood, Calif. A liquidation.

HELP WANTED

HELP WANTED

REFINERY SUPERVISORS WANTED

Shortly after the first of the year The Pure Oil Company will complete a modern lubricating oil manufacturing plant near Beaumont, Texas.

Several excellent opportunities will be available to men capable of:

Supervision of Vacuum Distillation
Supervision of Propane Deasphalting
Supervision of Phenol Extraction
Supervision of Solvent Dewaxing
Supervision of Contact Finishing

If you are interested please supply a resume of your experience and photo in your initial reply.

THE PURE OIL COMPANY

Personnel Department

35 East Wacker Drive Chicago 1, Illinois

HELP WANTED

REFINERY EXECUTIVE NEEDED

An American oil company, affiliated with Standard Oil Co. (N.J.) and located in South America, needs a

GENERAL FOREMAN

Receiving and Shipping Department

High School or equivalent, approximate age 35. Minimum experience ten years in supervision in directing the functions of employes handling crude and refined products, schedules, operating plans, lines, operations, blending of refined products and pumping and gauging.

• • •

Liberal salary, other cash payments, retirement plan, paid vacations, excellent opportunities for career work.

• • •

Send details of experience and education to:

Box 308-G
RADIO CITY STATION
New York 19, N. Y.

Replies are held strictly confidential.

PETROLEUM or Mechanical Engineer for sales and service position in Gulf Coast Area with manufacturer of oil field equipment located in the Gulf Coast. Salary based on training and experience. Write giving training, experience and personal details. Box C-647, The Oil and Gas Journal, Tulsa, Oklahoma.

HELP WANTED

OIL Industry Employment Service, 319 Castle Bldg., Tulsa, Okla. Tom Robinson, Mgr., phone 4-5974. No fees to pay. Needed in Persian Gulf area, Middle East. Assistant to Drilling Superintendent with mechanical engineering degree $600. Division Pipe Line Superintendent, salary open. Rotary drillers $480, age limit 55. Derrickmen $420, age limit 26 to 35. All must be experienced. Write for details.

SALESMAN

By outstanding manufacturer of drilling replacement part. Experienced background with rig manufacturer, oil supply stores and drilling contractors required. Above average salary and commission for the right man. Give complete experience, age, and salaries earned in first letter. Box C-657, The Oil and Gas Journal, Tulsa, Oklahoma.

SALES ENGINEERS—25 to 35—with refinery, chemical, or gasoline plant training; no previous selling experience required. Knowledge of instruments desirable. Permanent. Mid-Continent area. Box C-651, The Oil and Gas Journal, Tulsa, Oklahoma.

HEAT TRANSFER ENGINEER

With experience in the petroleum industry, particularly in cooling and condensing of hydrocarbon gases and vapors with air finned surface. Box C-623, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEERING

During the next several months we will increase our Engineering Organization engaged in the design of Oil Refinery Plants and Power Plants. Location Cleveland, Ohio. The men we need should be qualified as draftsmen, designers, checkers or in higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, mechanical or electrical. For presenting your qualifications and prompt consideration, write to us for application form.

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

HELP WANTED

REFINERY EXECUTIVE NEEDED

An American oil company, affiliated with Standard Oil Co. (N.J.) and located in South America, needs a

CHIEF CHEMIST

College degree in chemistry or chemical engineering. Approximate age 35. Ten years experience in laboratory work, five years of which must have been in a refinery laboratory. Responsible for the functioning of the analytical and inspection laboratories.

• • •

Liberal salary, other cash payments, retirement plan, paid vacations, excellent opportunity for career work.

• • •

Send details of experience and education to:

Box 308-G
RADIO CITY STATION
New York 19, N. Y.

Replies are held strictly confidential.

WANTED: Petroleum Engineer with 4 to 5 years' experience in field work and reservoir studies for position in Oklahoma City, Oklahoma. Please state training experience, and salary expected in first letter. Box C-639, The Oil & Gas Journal, Tulsa, Oklahoma.

FOREIGN EMPLOYMENT in SAUDI ARABIA

ENGINEERS—MAINTENANCE ENGINEERING: ME'S, EE'S, CE'S:
Must have 4 to 5 years maintenance experience; refinery or process plant experience desirable but not required. Will staff maintenance engineering group charged with upkeep and repair of oil facilities and camps.
FEW OPENINGS FOR ASSISTANT ENGINEERS WITHOUT ABOVE EXPERIENCE.

POWER ENGINEER and ASSISTANT: EE'S:
Graduate engineers with wide experience in power generation and distribution to supervise installation and operation of 20,000 kw. power plant and power distribution system.

CHIEF INSPECTOR: ME:
Requires intimate knowledge and extensive experience with HP boilers, pressure vessels, refinery equipment.

ENGINEERS—PROCESS AND CHEMICAL: CHE'S:
Must have 5 years experience assigned to chemical engineering problems and refinery processes.

OPERATORS
Production, Gas Oil Separators, Topping Still, Natural Gasoline Plant and Auxiliary Power Plants.

Career employment opportunities for experienced Engineers, highly skilled Technicians and Craftsmen. Board and room furnished. Vacations in United States with salary end of each 24-month period. Benefit plans.

If interested, apply by letter, giving complete employment and personal history.

ARABIAN AMERICAN OIL COMPANY
200 Bush Street, Dep't. 'A' **San Francisco, California**

WANTED
PRODUCTION EQUIPMENT SALESMAN

Salesman for Oklahoma wanted by one of the largest oil tool manufacturers. Experienced in production specialties. Exceptionally good product. State experience and salary expected.

Box C-650
THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

United Geophysical Company, Inc.
595 East Colorado Street
Pasadena 1, California

offers employment to experienced Gravity and Seismic

Party Chiefs
Seismologists
Computers
Observers

in both North and South America and the Middle East

HELP WANTED

REFINERY EXECUTIVE NEEDED

An American oil company, affiliated with Standard Oil Co. (N.J.) and located in South America, needs an

ASSISTANT TECHNICAL SUPERINTENDENT

Degree, preferably Chemical Engineering, approximate age 35, minimum experience 10 years diversified experience in the field of Petroleum Technology for the solution of technical problems in the operation of a refinery.

• • •

Liberal salary, other cash payments, retirement plan, paid vacations, excellent opportunity for career work.

• • •

Send details of experience and education to

Box 308-G

RADIO CITY STATION

New York 19, N. Y.

Replies are held strictly confidential.

ANALYTICAL chemist, male, for development, instrumental, and some routine work in support of research program of major oil company. Degree in chemistry and strong interest in analysis required. Good working conditions and good schools in city of 20,000 population. Salary according to qualifications. Outline education, experience, and salary requirements to Drawer 1267, Ponca City, Oklahoma.

CIVIL ENGINEER

Require graduate Civil Engineer with minimum of 5 years experience in light construction and road building. Experience should include construction of residences and small office buildings, small permanent and semi-permanent bridges, shell and gravel road building and supervision of earth moving equipment. Installation of oil field equipment such as pipe line, storage tanks, etc., should be good surveyor and outside of company contact man. Call in person or write to Atlantic Refining Co., P. O. Box 2819, Magnolia Bldg., Dallas 1, Texas.

PRODUCTION SUPERINTENDENT

Attractive position open to a first-class production man with rotary and cable tool development experience. Prefer man with engineering training but not required if applicant is 35-45 with good education and capable of exercising independent action. Location: Ill.-Ind.-Ky. area. Write giving details of experience, education, and salary expected. Box C-649, The Oil and Gas Journal, Tulsa, Oklahoma.

THE Production Department of well established growing independent needs a young graduate Petroleum Engineer with one or more years field experience. Time to be devoted to drilling and production. Complete information is desired with first letter, To: Husky Refining Company, Box 380, Cody, Wyoming.

DRILLERS WANTED: Here is opportunity to average better than $100 a week on a commission (footage) basis if you are competent and sober and know how to make hole with heavy modern rigs and tools: within radius of 30 miles of Milwaukee. Gray Well Drilling Co., Delafield, Wisconsin. Phone 1051.

HELP WANTED

LEADING manufacturer of oil field equipment is looking for a first-class Mechanical Engineer, if possible with a broad knowledge of field usage of drilling and servicing equipment. Primarily, want man with ability and knowledge to direct and manage engineering program. Applicants should furnish educational background, engineering experience and reference. Address Box C-635, The Oil and Gas Journal, Tulsa, Oklahoma.

MECHANICAL ENGINEER

Require graduate Engineer with minimum of 5 years experience with internal combustion or compressors. Should also have some electrical experience. Headquarters, Midland, Texas. Permanent position. Company Car. Retirement, Hospitalization. Paid Vacations, Sickness Benefits, etc. Call in person or write Atlantic Refining Company, P. O. Box 2819, Magnolia Bldg., Dallas, Texas.

EXPERIENCED ENGINEERS NEEDED

An American oil company, affiliated with Standard Oil Co. (N.J.) and located in South America needs experienced engineers as follows:

PRODUCING

Petroleum, Electrical, Mechanical, Civil and Construction Engineers and Geologists.

REFINING

Refinery Maintenance and Process Engineers, Designers and Equipment Inspectors.

Degree and three years minimum experience.

• • •

Liberal salaries, other cash payments, retirement plan, paid vacations, excellent opportunities for career work.

• • •

Send details of experience and education to:

Box 308-G

RADIO CITY STATION

New York 19, N. Y.

Replies are held strictly confidential.

SERVICES

EXPERIENCED Independent Geological Draftsman will make formational top tracings, etc., of your information by contract. P.O. Box 1884, Tulsa.

PROSPECTUS PREPARED FROM YOUR DATA. Sales Letter, Follow-ups Written. Delaware Charters Secured. Classified Mailing Lists. Millions. Investors, Stockholders Etc. Write or Wire—Faultless Organization, T-3439 Michigan, Chicago.

PERSONAL

Application for Membership in the Diesel Engineers International Assn.
576 Newark Ave., Jersey City, N. J.

Name .....
Address .....
Reference .....

HELP WANTED

FOREIGN EMPLOYMENT In SAUDI ARABIA For QUALIFIED

GEOLOGISTS

Surface Mapping
Sub-Surface
Economic

SENIOR PALEONTOLOGIST

ENGINEERS

Triangulation Party Chief
Leveling Party Chief

SURVEYORS

Triangulation
Recorder-Triangulation
Precise Leveling

Career employment opportunities. Board and Room furnished. Vacation in U.S. with salary end of each 24-month period. Benefit plans.

If interested, apply by letter giving complete employment and personal history.

ARABIAN AMERICAN OIL COMPANY

200 Bush Street **Dept. 'A'**
San Francisco, California

SITUATIONS WANTED

CONTROLLER-EXECUTIVE

Presently employed but now desires a change with a future. Graduate accountant with over twenty years' experience in all phases of oil accounting, particularly production, refining and crude purchasing. Thoroughly capable of reorganizing your accounting department or can qualify as an Executive's Assistant. Write The Oil and Gas Journay, Box C-648, Tulsa, Oklahoma.

GRADUATE PETROLEUM ENGINEER: Fourteen years' engineering experience, major companies, desires responsible position with independent operator, consultants or consider service company. Qualified for field and office supervision of drilling, producing, engineering and geological work. Dependents. Available now. Details upon request. Box C-638, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOPHYSICIST M.S. Degree in mining, experienced gravity meter surveys, desires work leading to interpretation. Box C-611, The Oil and Gas Journal, Tulsa, Oklahoma.

GRADUATE PETROLEUM ENGINEER Now employed as executive assistant with large producing company. Experienced in technical administrative work. Age 33. Desires position with established oil company or equipment concern. Box C-604, The Oil and Gas Journal, Tulsa, Oklahoma.

CHEMICAL ENGINEER: Available November 1, 1948. Graduate Texas A. & M. Age 32, veteran. Any permanent location considered. John W. Potts, 5316 Longview Street, Dallas, Tex.

ROYALTIES

DEEDED ROYALTIES
San Juan Basin & Permian Basin. Write Harry S. Wright, Wright Bldg., Farmington, New Mexico.

ROYALTIES IN HOT AREAS!
Recent strikes have focused attention on Montana's deeper oil zones and major companies are moving fast, drilling and leasing. We buy direct in the field, sell direct to our customers. Write LANDOWNERS ROYALTIES COMPANY, Box 1225, Great Falls, Montana.

WANTED: ROYALTIES AND PRODUCTION. We are buyers. Send full particulars. Immediate action. Gerber & Company, 120 Wall Street, New York.

WE will buy producing or non-producing oil royalties. Standard Security Company, 115 Broadway, New York 6.

PATENT ATTORNEYS

PATENT Practice before U. S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommeli Registered Patent Attorneys, Suite 418 815-15th Street, N.W., Washington 5, D. C

LEGAL BLANKS

BURKHART LEGAL BLANKS since 1908 Oil-Gas (all states), Business, Real Estate Legal Forms, Leases, Revised With Government Regulations, Commercial Printing, Catalog and Samples on request. Burkhart Printing & Stationery Company, 118 South Cincinnati, Tulsa 3, Oklahoma.

BUSINESS OPPORTUNITIES

WILL GIVE LARGE SHARE of acreage I have leased in Grant County, New Mexico, on well defined structure, to party who will finish test well to depth of 2000' or less if oil or gas is encountered. Expect production around 1600'. Large operations planned in near future by several companies. Area has been predicted as "Next Large Oil Discovery in New Mexico." Well drilled about five miles from location had excellent showing gas and oil about 1400'. Francis Seyfried, Box 500, Point Pleasant, New Jersey.

MANUFACTURERS ATTENTION!!
West Coast Distributorships Wanted
PETROLEUM EQUIPMENT SPECIALTY LINES
5884 Gaviota Ave., Long Beach 5, Calif.
W. B. Williams, Sales-Service Representative. Warehousing and Yard Facilities Available.
"Assured and Complete Coverage"

LEASE AND DRILLING BLOCKS

830-ACRE block, Osage County, Oklahoma. Near production with four sands 1600 to 2050'. Will farm out block to responsible operator who is financially able to drill several wells and develop block. Box C-652, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: 50-acre lease, heart of Arkansas Fuel Block, #1 well near completion as producer, Shelby County, Texas. Write for details: C. A. Parker, Box 451, Center, Texas.

PRINCIPAL WILL BUY: Group of scattered oil and gas producing royalty interests in old fields. Prefer group $25,000.00 or more. Box C-605, The Oil and Gas Journal, Tulsa, Oklahoma.

LEASES ROYALTIES
PRODUCING OR NONPRODUCING
Texas, New Mexico, Oklahoma, Louisiana and Illinois.
Inquiries Invited
B. D. BUCKLEY
60 Broadview Drive, Clayton (5), St. Louis, Missouri

REAL ESTATE

FOR SALE: In Latimer County, Oklahoma, 2,600 acres. Fee. $7.50 per acre, all mineral rights included. Details: E. Jester, 12744 Vanowen, North Hollywood, California.

Equipment Men

(Continued from page 154)

Kusz Appointed to Caterpillar Post

William Kusz, special representative since 1946, has been appointed supervisor of industrial advertising at Caterpillar Tractor Co., Peoria, according to announcement by W. K. Cox, advertising manager. He succeeds K. M. Emery, who has been promoted to supervisor of cooperative dealer advertising.

E. C. Chapman has been appointed supervisor of industrial motion pictures; L. L. Morgan, supervisor of agricultural advertising; Fred V. Jacobs, supervisor of engine advertising, and Robert Culshaw, supervisor of picture procurement.

Barco Celebrates Fortieth Anniversary

The identity of interests of employe and employer and the complexity of modern business were dramatically portrayed by F. N. Bard, president of Barco Manufacturing Co., at a recent dinner for Barco veteran employes on the occasion of the firm's fortieth anniversary. A structure prominently displayed, was a 6 by 8-ft. replica of a building with a sign on top of the roof which said "The Roof Over Barco—Every Shingle Must Be Sound." Each shingle shown on the roof represented a management function. Over 200 veteran employes attended the dinner.

Slater Heads Kobe's Hydraulic Equipment Sales

W. F. (Pete) Slater, manager of general technical service division, Kobe, Inc., has been appointed to the newly created position of manager of hydraulic equipment sales. He joined Kobe, Inc., in 1940, at Tulsa as district manager, and in 1942 moved to California to become California division manager. In 1945, he was appointed manager of Kobe's general technical service division.

Kieley & Mueller Appoints Bailey

Appointment of Al Bailey as general manager of Kieley & Mueller, manufacturer of automatic control valves, has been announced by Joseph O'Connor, president of the company. Bailey will make his headquarters at the company's plant at North Bergen, N. J., but in addition will spend considerable time with Kieley & Mueller, distributors throughout the United States.

Jackson Addresses Tool Engineers Convention

Gordon Jackson, vice president and general manager, Eastman Oil Well Survey Co., was one of the principal speakers at the Society of Tool Engineers convention, held in Los Angeles at the Biltmore Hotel. Jackson's talk, illustrated with slides, was on "Directional Drilling Achievements and Accomplishments."

Kerotest Names New Sales Representative

Kerotest Manufacturing Co. has announced appointment of Adrian Van Kampen to its Southwest sales division, with headquarters at Houston. Van Kampen will cover the territory formerly serviced by Walter Cox. For many years he was associated with Allis-Chalmers as sales engineer.

Flader Makes Sales Agreement With Clark

Fredric Flader, Inc., of North Tonawanda, N. Y., has entered into a long-term agreement with Clark Bros. Co., Inc., an affiliate of Dresser Industries, Inc., to do research development and design work on axial-flow compressors and gas turbines. Under the arrangement, Clark Bros., Olean, will manufacture these products and sell them through its international sales organization. Dresser Industries has acquired a financial interest in the Flader company which will continue under local ownership and management as heretofore.

The axial flow compressor has been recently developed and Clark expects to establish a wide market for its application in the petroleum and chemical fields. In the designs developed by the Flader company, the gas turbine produces power by means of a drive shaft and is otherwise similar to the jet engine recently employed extensively in military aircraft.

Sparks Joins H. E. Bowman Co.

Frank H. Sparks has been appointed head of the pump department of H. E. Bowman Co. Sparks, who recently resigned from Egglehoff Engineers, was employed for 13 years with Shell Oil Co., Inc., 2½ years as process engineer for J. S. Abercrombie Co., and 3 years with Climax Engineering Co. in sales work. H. E. Bowman Co. has recently expanded its pump department to include the distribution of Marlow pumps.

ADVERTISERS

Abegg & Reinhold Co. 130
Allis-Chalmers Mfg. Co. 12, 13
Amercoat Div. American Pipe and Construction Co. 6
American Blower Corp. 27
American Iron & Machine Works Co. 89
American Manufacturing Co. of Texas 4
American Meter Company 100, 101
Armstrong Bros. Tool Co. 130
Baldwin-Duckworth Division of Chain Belt Company 22
Baroid Sales Division, National Lead Company 8
Barret, Inc., William M. 138
Bendix Aviation Corp. (Scintillion Magneto Div.) 10
Bethlehem Steel Co. 1
Boyd Co., Clarence L. 123
Brown & Root, Inc. 2
Bucyrus-Erie Co. 11
Buffalo Forge Co. 16
Cable & Stine 136
Cameron Iron Works, Inc. 55, 138
Campbell Co., J. A. 134
Cathodic Protection Service 124
Charlie's Machine Works 136
Chicago Bridge & Iron Company 77, 78, 79, 80
Classified Advertising 155, 156, 157, 158, 159
Coffield, H. H. 149
Continental Motors Corp. 87
Coppus Engineering Corp. 3
Crutcher-Rolfs-Cummings, Inc. 122
Curtin & Co., W. H. 138
Dean Brothers Pumps, Inc. 106
Dragon Manufacturing Co. 140
Drilling Research, Inc., Division of Phillips Petroleum Co. 112
Durbin-Durco, Inc. 147
Edwards Company, E. H. 128
Engineering Products Co. 144
Fairbanks, Morse & Co. 137
Fulton & Co., R. H. 123
Garlock Packing Company, The 121
General Electric Company 7, 144
George Engine Co., Inc. 141
Glidden Co., The (Soya Production Division) 71
Globe Steel Tubes Co. 73
Golden Citrus Groves 135
Goodrich Chemical Co., B. F. (Hycar) 52
Grancell, I. H. 129
Grant Oil Tool Co. 9
Griscom-Russell Co., The 118
Gulf Coast Rent-A-Car-Truck Co. 148
Gunite Concrete & Construction Co. 120
Halliburton Oil Well Cementing Co. Inside Front Cover
Hazard Wire Rope Division of American Chain & Cable Co., Inc. Inside Back Cover
Huey & Co., S. E. 124
Hughes Tool Co. Back Cover
International Nickel Company, Inc., The 30
Jones & Laughlin Supply Co. 15
Keith Co., Ben E. 137
Knox Industries, Inc. 117
Koehring Company 28
Koppers Co., Inc. 145
Lane-Wells Company 20
Latex Construction Co. 122
Leeds & Northrup Co. 5
Line Scale Co., Inc. 131
Link-Belt Company 62
Lone Star Cement Corporation 32
Lukens Steel Company 94
Manning, Maxwell & Moore, Inc. 121
Mathey Machine Works, Inc., Frank 134
Mayfair Hotel 136
McCord Corporation 120
Mechanical Mfg. Co., Inc. 148
Millison Co., W. B. 152
Mission Manufacturing Co. Front Cover
National Airoil Burner Co., Inc. 120
National Supply Co., The 66, 67, 68
Norris Brothers, Inc. 125
Oakite Products, Inc. 147
Oil and Gas Journal, The 92, 93, 120
Oil Well Manufacturing Corp. 104
Oliver United Filters, Inc. 127
Overstrom & Sons 130
Owen Tool Company 130
Parsons Co., The, Koehring Subsidiary 29
Patterson-Ballagh Div., Byron Jackson Co. 148
Pelican Well Tool & Supply Co. 134
Penberthy Injector Co. 120, 123, 129, 140, 148, 152
Pennsylvania Flexible Metallic Tubing Co. 24
Perrault Brothers, Inc. 124
Petroleum Electric Power Assn. 84
Petroleum Rectifying Company 119
Porter Company, Inc., H. K. 34
Powers Regulator Co., The 110
Princeton University Press 135
Raymond Concrete Pile Co. 17
Rector Well Equipment Co., Inc. 140
Reo Motors, Inc. 23
Riddle Oil Co. 140
Rockford Clutch Division, Borg-Warner 125
Ross-Martin Co. 134
Roy Co., Milton 143
Rust-Oleum Corp. 139
Ryerson & Son, Inc., Joseph T. 146
Smith Meter Co., Subsidiary of A. O. Smith Corp. 74
Spang-Chalfant Division of The National Supply Co. 65
Standard Oil Company (Indiana) 21
Standard Oil Sales Co. 131
Standco Brake Lining Co. 148
Tapecoat Co., The 124
Tension Envelope Corp. 131
Thomas Flexible Coupling Co. 142
Timken Roller Bearing Co., The (Steel and Tube Division) 25
Torrington Co., The 108
Trimont Manufacturing Co. 106
Union Pacific Railroad 14
Unit Crane and Shovel Corp. 125
United States Rubber Company 26
U. S. Steel Corp. Subsidiaries 132
United Supply and Manufacturing Co. 83
Universal Atlas Cement Co. 132
Vapor Recovery Systems Co., The 104
Welex Jet Services, Inc. 106
Westinghouse Electric Corporation 18, 19
Wico Electric Company 135
Wilson Oil Tools, Inc., Web 131
Youngstown Sheet and Tube Co., The 51

CALENDAR

November

Society of Automotive Engineers, fuels and lubricants division, Mayo Hotel, Tulsa, November 4-5.

American Petroleum Institute, annual meeting, Stevens Hotel, Chicago, November 8-11.

Oklahoma steering committee on oil field names, Kansas-Oklahoma division, Mid-Continent Oil and Gas Association, Tulsa Building, Tulsa, November 11.

Dallas Geological Society and Dallas Geophysical Society, joint regional exploration meeting, Adolphus Hotel, Dallas, November 18-19.

Rocky Mountain Oil and Gas Association, annual meeting, Cosmopolitan Hotel, Denver, Colo., November 18-20.

American Society of Mechanical Engineers, annual meeting, Hotels Pennsylvania and New Yorker, New York, November 28-December 3.

December

American Association of Petroleum Geologists, regional meeting, Rice Hotel, Houston, Tex., December 2-3.

Petroleum Electric Power Association twentieth annual meeting, Biltmore Hotel Oklahoma City, December 2-3.

National Gasoline Association of America regional meeting, Amarillo, Tex., December 10.

Interstate Oil Compact Commission, quarterly meeting, Allis Hotel, Wichita, Kans December 9-11.

1949

January

Society of Automotive Engineers, annual meeting, Book-Cadillac Hotel, Detroit, Mich January 10-14.

February

American Society for Testing Materials spring meeting and A.S.T.M. committee week, Hotel Edgewater Beach, Chicago Ill., February 28-March 4.

March

National Association of Corrosion Engineers, annual convention, Cincinnati, Ohio, March 7-10.

American Petroleum Institute, Southwestern district, Galvez Hotel, Galveston, Tex., March 9-11.

American Petroleum Institute, division of production, Mid-Continent district meeting, Mayo Hotel, Tulsa, March 23-25.

New England Gas Association, Hotel Statler, Boston, March 24-25.

Western Petroleum Refiners Association thirty-seventh annual meeting, Plaza Hotel San Antonio, Tex., March 28-30.

American Chemical Society, division of petroleum chemistry, spring meeting San Francisco, March 27-April 1.

April

American Society of Lubrication Engineers, annual meeting, Pennsylvania Hotel New York, April 11-13.

National Association of Corrosion Engineers, Netherlands-Plaza Hotel, Cincinnati Ohio, April 11-13.

Southwestern Gas Measurement Short Course, University of Oklahoma, College of Engineering, Norman, Okla., April 12-14.

National Petroleum Association, Hotel Cleveland, Cleveland, Ohio, April 13-15.

Natural Gasoline Association of America annual meeting, Texas Hotel, Fort Worth April 20-22.

Southern Gas Association, annual convention, Buena Vista Hotel, Biloxi, Miss., April 20-22.

American Petroleum Institute, Eastern district, William Penn Hotel, Pittsburgh, Pa., April 27-29.

May

Independent Petroleum Association of America, mid-year directors meeting, New Orleans, La., May 2-4.

American Gas Association, natural-gas department, spring meeting, French Lick Springs Hotel, French Lick, Ind., May 9-10.

American Petroleum Institute, division of production, Pacific Coast district meeting, Biltmore Hotel, Los Angeles, Calif., May 12-13.

American Petroleum Institute, Rocky Mountain district, Gladstone Hotel, Casper, Wyo., May 26-27.

June

American Society for Testing Materials, fifty-second annual meeting, Hotel Chalfonte Haddon Hall, Atlantic City, N. J., June 27-July 1.

NOMADS

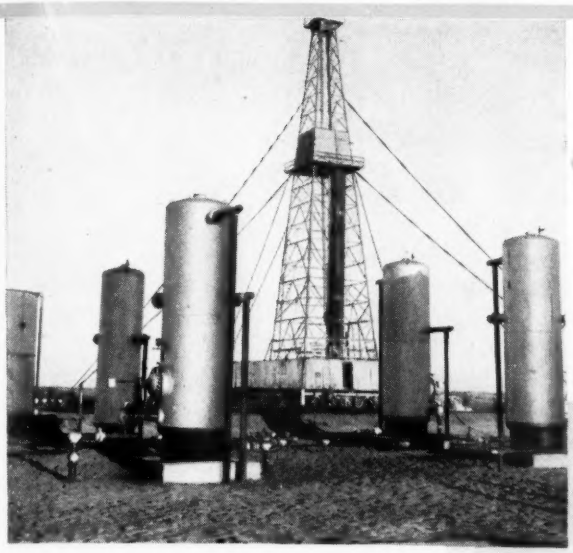
Houston Nomads, second Monday of each month, The Houston Club, Houston.

Los Angeles Nomads, second Wednesday each month, Jonathan Club.

Louisiana Sets Deadline For Lease Applications

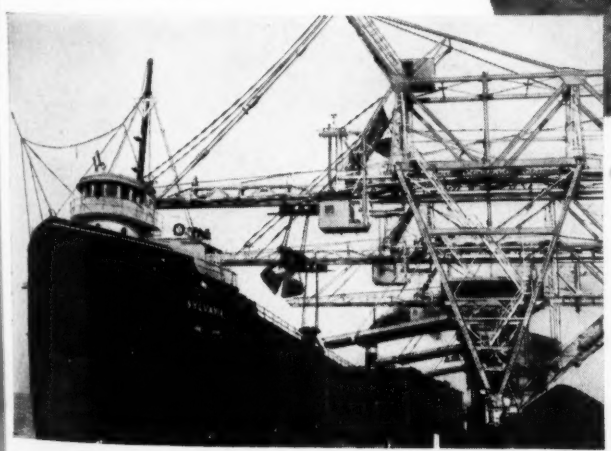
HOUSTON.—The Louisiana State Mineral Board has scheduled a meeting for December 14 and notified oil operators that November 12 is the last day application for lease of inland tracts can be received at its office in Baton Rouge, La., for consideration at the meeting. Offshore tracts up for lease, the board said, must be advertised November 26, December 3, and December 10.

Improved Performance with LAY-SET PREFORMED



"Make hole" deeper—*faster*—is the demand in the oil fields. The deeper the hole goes, the greater the weight of drill pipe and tools. The faster it goes, the greater the shock loads in pulling and running in pipe. Hazard makes LAY-SET Preformed in Seale construction, with tough improved plow steel wires, and an independent wire rope core. LAY-SET's improved performance makes it THE rope for deeper, faster drilling.

The powerful "cat" and ravenous carrier-scraper cut down hills and fill in valleys. They make modern roads, airports, dams, and industrial sites – yes, even remove overburden in strip mining operations. Hazard's LAY-SET Preformed *Streamlined* Scraper Cable is designed for the tortuous sheaves and reverse bends that prove the quality of the rope. It will improve the performance of your equipment.



Coal and ore bridges hurry to load and unload ships and cars. The wire ropes travel fast as the 5, 10, 15-ton load speeds from ship to shore. Ropes whip. Quick starts and short stops mean extreme shock loads. Sharp steel edges mean cutting and abrasion. Tough conditions, but Hazard's LAY-SET is made in the right constructions for bridges. You can get the exact ropes that will improve performance and serve you best.

Whatever the field — logging, mining, building elevator, contractor, industrial, marine, or oil — Hazard wire ropes give you improved performance.

ACCO *In Business for Your Safety*

Ask your distributor for LAY-SET Preformed, Green Strand Wire Rope

TRADE MARK

HAZARD WIRE ROPE
A DIVISION OF AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, Pittsburgh, San Francisco, Wichita, Bridgeport, Conn.

HUGHES SERVICE

IS WHERE YOU WANT IT

WHEN YOU WANT IT

Over forty years' experience in the field qualifies Hughes service to simplify your drilling problems. From "spudding in" to completion Hughes furnishes 'round-the-clock reliability. This is the Hughes policy of service-plus . . . the service you have learned to rely on from Hughes representatives.

HUGHES TOOL COMPANY
HOUSTON, TEXAS

Standard of the Industry